

EFFECTS OF SPECIFIC STRATEGY TRAINING ON  
THE WRITTEN EXPRESSION OF LEARNING  
DISABLED STUDENTS GRADES 3-6

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A Dissertation  
Presented to  
The School of Graduate Studies  
Drake University

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In Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Education

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by  
Helen Kurtz  
December 1987

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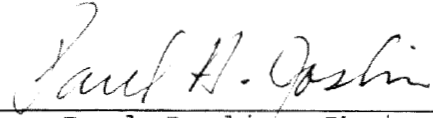
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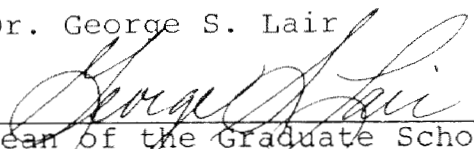
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EFFECTS OF SPECIFIC STRATEGY TRAINING ON  
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An abstract of a Dissertation by  
Helen Kurtz  
December 1987  
Drake University  
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The problem. Learning disabled students acquire or use written language skills less efficiently than non-disabled students. Specific interventions are needed to facilitate written language acquisition for the learning disabled.

Procedure. Eighteen learning disabled students in grades three through six were involved in a study to investigate the effects of specific strategy training on their written language skills. A three-group planned-match design was employed to determine the possible effects of strategy training under the contrasting conditions of teacher direction and self-direction. The standard-intervention group served as the control group and did not receive strategy training. The teacher-directed group was involved in strategy training and was monitored during strategy use by the teacher. The self-directed group received strategy training as well as guidelines to self-monitor strategy use. The purpose of this group was to determine if learning disabled students could employ the metacognitive skills of self-questions and self-statements to guide strategy use and to determine if there was a difference between teacher directed and self-directed strategy use.

Findings. Pre and post tests were administered and immediate gain factors were reported based on the Test of Written Language (TOWL) total and subtest scores. Anecdotal observations of writing behaviors were also collected. Students who were trained in writing strategies performed better in general on the TOWL than students who were not trained in strategy use. Students who learned to monitor their own strategy use showed greater gains than students whose strategy use was monitored by the teacher.

Recommendations. The application of cognitive strategies to academic areas is viable focus for continued study.



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## CHAPTER 1

### Introduction

#### Statement of the Problem

The ability to shape language into meaningful units and to record it in clear and precise written form remains the most elusive of the language arts. Written expression is the last of the language arts to develop, preceded by listening, speaking, and reading, and it is an area in which even the most efficient learner may have difficulty surpassing a minimum standard of proficiency. For the learning disabled student, the complex, multidimensional demands of writing may be compounded by a lack of prerequisite language abilities. Lerner suggests that students with specific learning disabilities bring less language proficiency to the writing situation than non-learning disabled students and are less likely to benefit from opportunities to learn to write.<sup>1</sup> As a result, the learning disabled child is unlikely to achieve proficiency in written language without specific intervention. Specific and effective interventions are needed to facilitate the acquisition of written language skills by learning disabled students. What are such effective interventions?

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<sup>1</sup> Janet W. Lerner, Children with Learning Disabilities, 2nd ed. (Boston: Houghton Mifflin, 1976), 221.

Written language deficits in learning disabled (LD) students have been documented by several sources. Myklebust noted LD students worked more slowly and had more spelling errors than non-LD students.<sup>1</sup> Furthermore, he found LD students wrote fewer total number of words with fewer words per sentence and were significantly less competent in the areas of ideation and syntax than non-LD students. Alley and Deshler noted the LD student's limited vocabulary, inability to organize ideas, and high frequency of mechanical errors.<sup>2</sup> A high rate of spelling errors was also found by Hemreck during a study of LD students in grades three through six.<sup>3</sup> Poteet's findings indicate LD students write half as many words as non-LD students, with more omissions and punctuation errors than their non-handicapped peers.<sup>4</sup> Learning disabled students appear to be less successful in attaining written language skills than non-learning disabled students.

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<sup>1</sup> Helmer R. Myklebust, Studies of Normal and Exceptional Children, vol. 2 of Development and Disorders of Written Language (New York: Grune and Statton, 1973), 86.

<sup>2</sup> Gordon R. Alley and Donald D. Deshler, Teaching the Learning Disabled Adolescent: Strategies and Methods (Denver: Love, 1979), 16.

<sup>3</sup> L. Hermreck, "A Comparison of the Written Language of Learning Disabled and Non-Learning Disabled Elementary Children Using the Inventory of Written Expression and Spelling" (MS, Univ. of Kansas, 1979), 3.

<sup>4</sup> James A. Poteet, Characteristics of Written Expression of Learning Disabled and Non-Learning Disabled Elementary School Students (ERIC, ED 159 830, 1978), 7.

### Rationale

Recent probes into the nature and extent of learning disabilities provide interesting new options to explore in facilitating written expression for the learning disabled student. Increasingly, studies focus on how the learning disabled child approaches a problem. Results from this type of inquiry may provide information regarding the cognitive behaviors that a learning disabled child employs during the process of learning a skill.

Torgesen suggests that the learning disabled child remains removed from the learning process and fails to become actively involved in the task.<sup>1</sup> The learning disabled child is an inactive learner and is unaware of both the response which is expected and the information that is available in the learning situation. The optimal instructional focus for the learning disabled child, therefore, is one that actively involves the learner.

One approach that has been successful in actively involving the LD student in the learning situation is the learning strategies approach developed by Alley and Deshler. Alley and Deshler define learning strategies as "techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage, and

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<sup>1</sup> Joseph K. Torgesen, "The Role of Nonspecific Factors in the Task Performance of Learning Disabled Children: A Theoretical Assessment," Journal of Learning Disabilities 10 (1977): 27.

and retrieval of information across situations and settings."<sup>1</sup> Strategies are ways to approach learning situations and to confront the demands of a learning task with a high probability of some type of resolution. Strategies are 'attack' devices and virtually negate passivity and apathy because of the personal involvement of the learner during the confrontation. The learner purposely plans a means of attack and sets out to conquer the learning task. Effective learning strategies are durable, reusable, and consistently productive. Their usefulness lies not in providing a specific answer but in illuminating the way toward a solution time after time.

Further insights into the cognitive behavior of learning disabled students are being offered by researchers from the fields of psychology and neurology. The psychological and neurological correlates of learning appear to fall into two categories--those that can be consciously influenced by the learner and those that cannot be controlled. Mussen, Conger, and Kagan identify the two types of cognitive activity as undirected and directed cognition.<sup>2</sup> Undirected cognition refers to the free flow of thoughts including free associations and dreams.

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<sup>1</sup> Alley and Deshler, 13.

<sup>2</sup> Paul H. Mussen et al., Child Development and Personality (New York: Harper & Row, 1974), 277.

Directed cognition refers to the cognitive processes evoked to solve a problem. These problem-solving processes include perception and interpretation, memory, generation of hypotheses, evaluation, and deduction. Educators are very interested in discovering more about the cognitive behaviors, skills, and strategies that can be controlled by the learner to solve a problem. The area of developmental psychology that addresses self-controlled cognitive activity is known as metacognition.

Metacognition, according to Meichenbaum, refers to an individual's awareness of his own thinking processes.<sup>1</sup> The term metacognition refers to the deliberate, planned use of self-initiated cognitive strategies such as analyzing the task, predicting outcomes, and considering alternatives in a problem-solving or learning situation. Metacognition is regulated by metacognitive skills, which are self-initiated, self-regulatory mechanisms engaged during a learning task. Metacognitive skills utilize inner language to regulate an individual's thinking and take the forms of verbal rehearsal of what to do, decisive self-statements of how to proceed, and leading self-questions to assist in decision making. Tarver, Torgesen and Goldman, and Hallahan and Kneedler, suggest that learning disabled

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<sup>1</sup> Donald Meichenbaum, Teaching Thinking: A Cognitive-behavioral Approach (Austin, TX: Society for Learning Disabilities and Remedial Education, 1982), 3.



students are inefficient in the use of metacognitive skills.<sup>1</sup> The study of metacognition and the efficient use of metacognitive skills appears to be a promising field of study for professionals involved with learning disabled children.

### Research Questions

The research questions developed for this study addressed the effectiveness of strategy training and the feasibility of applying metacognitive skills to the writing task. The questions were:

1. What is the effect of training in a specific writing strategy on the written expression of learning disabled students?
2. Can learning disabled students employ the metacognitive skills of self-statements and self-questions to guide their own use of a specific writing strategy?
3. Is there a difference between self-guided and teacher-directed strategy use on the written expression of learning disabled students?

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<sup>1</sup> Sara G. Tarver et al., "Verbal Rehearsal and Selective Attention in Children with Learning Disabilities: A Developmental Lag," Journal of Experimental Child Psychology 22 (1976): 375-85; Joseph K. Torgesen and Tina Goldman, "Verbal Rehearsal and Short-term Memory in Reading-disabled Children," Child Development 48 (1977): 56; Donald P. Hallahan and Rebecca D. Kneeder, "Strategy Deficits in the information processing of Learning Disabled Children," Technical Report No. 6, Univ. of Virginia Learning Disabilities Research Institute, Charlottesville (1979), 4.

### Description of the Study

To address the research questions, a three-group planned-match design was developed. Eighteen learning disabled students in grades three through six from two Des Moines, Iowa public schools were involved in the study. Subjects were selected according to the following criteria:

1. Identified as learning disabled using the State of Iowa Department of Public Instruction definition of Learning Disabilities.
2. Exhibited a deficit in written language as indicated by performance on the Test of Written Language.<sup>1</sup>
3. Scored at least one, but no more than three, years below grade level in reading.
4. Scored within one standard deviation of the mean on the Wechsler Intelligence Scale for Children--Revised full scale score.<sup>2</sup>

Each subject was matched with two comparable individuals on the basis of intelligence, reading level, and grade placement (all within a specified range), and gender. The three groups were randomly assigned to treatments. Group One was identified as the Non-Strategy Group and served

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<sup>1</sup> Donald D. Hammill and Stephen C. Larsen, Test of Written Language (Austin, TX: PRO-ED, 1978).

<sup>2</sup> David Wechsler, Wechsler Intelligence Scale for Children--Revised (New York: The Psychological Corp., 1974).

as the control. The purpose of this group was to determine the effects of standard, nonspecific intervention on the written expression of LD students. Group Two was identified as the Teacher-Directed Strategy Group and received training in the use of a specific writing strategy. The purpose of the Teacher-Directed Group was to determine the effect of specific strategy training on the written language of LD students. Group Three was identified as the Self-Directed Strategy Group and received training in the specific writing strategy as well as guidelines to monitor individual strategy use. The self-monitoring guidelines employed the metacognitive skills of self-questions and self-statements to guide the student during the writing task. The purpose of the Self-Directed Group was to determine if LD students could employ the metacognitive skills of self-questions and self-statements to guide strategy use and to determine if there was a difference between teacher-directed and self-guided strategy use.

The specific strategy developed for use in this study was the Story Star, a planning device which outlines a five-item story structure. Each point on the Story Star identifies a feature of narrative writing: characters, place, problem, action, and ending. (See Appendix.)

Pre and post tests were administered to each group. Immediate Gain Factors were computed based on performance

on the Test of Written Language to determine the effectiveness of strategy training. Anecdotal observations were collected to monitor writing behaviors during the training session and to aid in analyzing results of the investigation.

### Definition of Terms

Terms specific to this study were defined as follows:

1. Metacognition refers to the area of developmental psychology which examines self-initiated cognitive behaviors. The term refers to a cognitive self-awareness of one's own thinking abilities. Metacognition is the deliberate, planned use of cognitive strategies and includes the decision-making process in which an individual decides which cognitive strategies will be employed.

2. Metacognitive Skills are the cognitive behaviors that are self-initiated to regulate one's thinking and learning. Metacognitive skills include verbal rehearsal of what to do, self-statements to direct one's action, and self-questions to clarify one's thinking.

3. Written Language is defined as the use of graphic language symbols to represent thoughts, feelings, and ideas in a visible form.

4. Instruction refers to intervention during the learning situation which provides the learner with an indication of how to proceed with the task. In this study, two types of instruction were examined.

- a. Teacher-directed instruction refers to intervention in the form of cues, prompts, and feedback from the teacher during the learning task.
- b. Self-directed or self-guided instruction refers to intervention in the form of self-questions and self-statements to guide the learner toward a written product.

5. Inner Language or Inner Voice is defined as self-talk which occurs at a sub-vocal level. Inner language organizes and translates thoughts into verbal messages.

#### Assumptions

The following assumptions were made during this study:

1. Metacognitive skills are primarily learned skills that can be taught and that improve with practice.
2. Learning disabled students lack, or are deficient in the use of, metacognitive skills.
3. Learning disabled students lack, or are deficient in the use of, specific writing strategies, such as the Story Star.
4. Writing that occurs outside the experimental sessions is practice but not instruction in the process of writing. Outside practice may increase writing facility without necessarily increasing skill level.

## CHAPTER 2

### Related Literature

#### Problems with Research on Writing

Research in the area of writing has been slow to emerge. Whiteman reviews the history of writing research and concludes that writing research lags as much as one hundred years behind reading research.<sup>1</sup> She suggests several reasons for negligible progress in this area of research. First, tests and measurements of reading skills have attained an acceptable level of specificity and validity, while most standardized writing tests have not. Secondly, teachers are trained to teach reading but not specifically trained to teach writing. Graves, in a study of writing in the schools, finds reading is emphasized significantly more than writing in classrooms and in teacher training programs.<sup>2</sup> He further notes that what is described as writing instruction in schools may actually be instruction in what are often thought of as prewriting skills, such as handwriting, vocabulary development, spelling, punctuation, and capitalization. In the absence

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<sup>1</sup> Marcia F. Whiteman, "What We Can Learn from Writing Research," Theory into Practice 19, no. 3 (1980): 150.

<sup>2</sup> Donald H. Graves, Balance the Basics: Let Them Write (New York: Ford Foundation, 1978), 5.

of methods and practices to study, writing research has slowly evolved over the last twenty-five years at the rate of about six studies per year.<sup>1</sup>

One probable reason for negligible progress in writing research lies in the complex, multifaceted nature of writing and the difficulty of measuring and evaluating written expression. Since a single written product can receive a variety of ratings ranging from excellent to poor depending upon the raters, Kincaid found that a single sample of writing was inadequate in demonstrating competence.<sup>2</sup> Kincaid suggests the variables that interfere with measuring actual writing abilities include the student's variable performance due to fatigue, anxiety, and emotional state, as well as the examiner's variability due to fatigue, personal feelings, expectations, and experience. Even when specific criteria are established, subjectivity cannot be eliminated during the evaluation of writing. Diedrich found that teachers often form biases about students, and furthermore, teachers are seldom aware of their inconsistent approaches.<sup>3</sup>

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<sup>1</sup> Graves, Balance the Basics, 5.

<sup>2</sup> Gerald L. Kincaid, "Some Factors Affecting Variations in Quality of Students' Writing," Research in Written Composition, eds. R. Braddock, R. Lloyd-Jones, and L. Schoer (Urbana, IL: National Council of Teachers of English, 1963), 243.

<sup>3</sup> Paul B. Diedrich, Measuring Growth in English

Hammill and Larsen discuss problems of measurement of writing abilities and provide direction for assessment of written performance.<sup>1</sup> Five components of written expression are identified as mechanical, productive, conventional, linguistic, and cognitive. Using both contrived and spontaneous formats, the authors of the Test of Written Language provide a means to qualitatively and quantitatively measure the five components specified.

In addition to problems in measurement and evaluation, research on writing has had to contend with problems of research design. Graves states that the study of writing defies statistical methods and is not amenable to "hard data" in the manner of traditional educational research.<sup>2</sup> To apply the scientific model and conventional statistical methods to writing, Graves suggests, results in an inaccurate and misleading representation of the writing process. Writing must be examined within the context in which it occurs. Graves identifies three contextual categories: the conditions under which the writing episode takes place, the role of writing in the life of the child,

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(Urbana, IL: National Council of Teachers of English, 1974), 119.

<sup>1</sup> Hammill and Larsen, 5.

<sup>2</sup> Donald H. Graves, "A New Look at Research on Writing," in Perspectives on Writing in Grades 1-8, ed. Shirley M. Haley-James (Urbana, IL: National Council of Teachers of English, 1981), 94.



and the social-ethnographic factors that contribute to the writing experience. Graves suggests writing research needs to focus on student behavior and the writing context, and he concludes that the appropriate model to focus on these factors is a responsive rather than scientific model. A responsive model is process-observation oriented rather than statistically controlled. A responsive model utilizes the teacher, classroom, and student in an interactive writing experience and records behaviors that result in a written product. Graves finds individual case studies and studies of groups of two to six students most conducive to research on writing. With individual subjects or under the conditions of small groups, the researcher is able to focus on the process of writing while recording, through observations, how writing develops.

#### Research on the Process of Writing

In recent years writing research has begun to focus upon the composing process--the steps through which a child progresses toward a written product. An extensive study by Clay of five-year olds provides insight as to how children learn writing conventions.<sup>1</sup> Clay identifies specific concepts children develop while learning to write.

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<sup>1</sup> Marie Clay, What Did I Write? A Study of Children's Writing (New Zealand: Heinemann Educational Books, 1975), 4-13.

The understanding that signs and shapes convey meaning is the sign concept and can develop in children as early as two or three years old. Children learn the message concept when they realize communication can take a written as well as spoken form. These early writing concepts appear to be closely related to Graves' contextual categories. Children who are exposed to written language in their daily experiences and who encounter writing within their social and cultural environments would seem to have more opportunities to learn to write.<sup>1</sup>

Clay identifies copying and flexibility in the use of familiar symbols as concepts which provide children with ways to expand written messages and to experiment with new communications.<sup>2</sup> Children also learn the concept of message generation which allows them to reorganize learned language elements to produce new writing. Beginning writers, Clay concludes, show an intention to convey meaning in their work. These concepts are early indicators of the cognitive and productive components of written language as described by Hammill and Larsen.<sup>3</sup>

A framework for understanding how young writers develop

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<sup>1</sup> Graves, "A New Look," 94.

<sup>2</sup> Clay, 12.

<sup>3</sup> Hammill and Larsen, 5.

control over writing skills is offered by DeFord.<sup>1</sup> Her investigations of children, aged two through seven, lead to conclusions about transitions in writing and the significance of a child's intention to communicate. DeFord concludes that the works of young writers may lack conventions but, nevertheless, reveal some form of planning and organization. Communication strategies develop as the child moves from global to specific concepts of written language. DeFord suggests the stages of writing development are neither sequential nor linear, but develop through trial and error as the child attempts to organize language into printed form. Two aspects of DeFord's findings suggest active involvement of the child during the writing process--the intention to communicate and the persistence to apply trial and error techniques to the writing task.

Perl indicates efficient writers follow consistent, sequential patterns during the composing process.<sup>2</sup> The composing process appears to be comprised of specific behaviors that relate to prewriting, writing, and editing. Perl suggests that the composing process includes four essential features. First, the writer must prepare to

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<sup>1</sup> Diane E. DeFord, "Young Children and Their Writing," Theory Into Practice 19, no. 3 (1980): 157-62.

<sup>2</sup> Sondra Perl, "The Composing Process," in Basic Writing: Essays for Teachers, Researchers, and Administrators, eds. L. W. Kaeden and D. R. Hoeber (Urbana, IL: National Council for Teachers of English, 1980), 31-32.

write by developing an understanding of what is to be communicated. Secondly, the writer must be able to sustain the flow of writing by expanding upon initial ideas. Thirdly, the writer must shape the product into a form acceptable for conveying the intended meaning. Finally, the writer has to rework the discourse for readers.

Efficient writers apparently recognize and incorporate these features as they write. They develop a personal array of natural or mechanical responses to meet the demands of writing. Perl notes that underlying the behaviors that enable a writer to prepare, sustain, shape, and rework written language are recognizable strategies which writers employ with varying proficiency. As a writer becomes more efficient, these strategies become internalized.

Prewriting behavior, which Perl finds to range from one and one-half to seven minutes for efficient writers, is of particular importance in the composing process. Several strategies appear during prewriting. Rephrasing the topic is one approach to getting ready to write. Narrowing the topic by organizing, forming dichotomies, or classifying information is a strategy frequently employed. Focusing on a key word in an attempt to generate associations is another strategy that consistently appears as efficient writers prepare to write.<sup>1</sup>

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<sup>1</sup> Perl, 31.

Perl's study of efficient writers provides interesting insights into "basic" or inefficient writers as well. Perl finds basic writers are not deficient in writing strategies but are inefficient in their use. The problem appears to be one of inappropriate emphasis on existing strategies rather than the absence of such strategies. For example, Perl suggests basic writers spend insufficient time preparing to write or shaping discourse into a meaningful form of self-expression. Furthermore, inefficient writers tend to focus prematurely on mechanical aspects of writing.<sup>1</sup>

A recent study by Bissex also focused upon how young children learn to write.<sup>2</sup> Using a single subject case study, Bissex discusses patterns of development in writing that emerged over a five-year period. She suggests differentiation, the subdividing of a whole into specialized parts, is recognizable in a child's writing as early as three years of age. Initially, a child's writing is undifferentiated, since letter-like graphics are used to convey complex meanings without regard to arrangement or association. Bissex found children begin to differentiate between parts of the total message by using letters or shapes to

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<sup>1</sup> Perl, 31.

<sup>2</sup> Glenda L. Bissex, "Patterns of Development in Writing: A Case Study," Theory into Practice 19, no. 3 (1980): 197-200.

represent specific sounds or concepts. Another form of differentiation occurs when the child learns that words are complete units of meaning separated by spaces.

Decentration as a pattern in writing develops as the child's perspective begins to widen to include others. Based on Piaget's definition of decentration as an outward movement from the egocentric view of the world, decentration occurs when the child is able to acknowledge a larger audience outside of the self-audience.<sup>1</sup> Bissex also suggests patterns develop in forms of writing (including signs, stories, books, lists, newspapers, letters, rhymes, charts, diaries, and codes) and in the function of writing. Increasing realism also emerges as a pattern in writing.

Britton et al. have studied writing samples of students aged eleven through eighteen in an effort to ascertain patterns of development in written language.<sup>2</sup> Using criteria believed to discriminate between qualitative changes in writing, Britton and associates found written expression for this age group progresses from unstructured writing for expressive purposes, to writing specifically developed for transactional purposes, and finally, to writing for

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<sup>1</sup> Jean Piaget, The Origins of Intelligence in Children (New York: Norton, 1963), 43-67.

<sup>2</sup> James Britton et al., The Development of Writing Abilities (London: Macmillan Education, Ltd., 1975), 16-20.

pleasurable or poetic purposes. The findings of Britton et al. suggest a relationship between writing development and the function of writing. Writing instruction, therefore, should focus on writing as a purposeful, goal-directed activity, not merely an exercise in form and mechanics.

Motivation to write may be a factor in attaining writing proficiency. Halliday suggests students are motivated to write because they recognize writing will enable them to accomplish goals that are otherwise unattainable.<sup>1</sup> Writing skills are unlikely to develop unless they serve a specific function for the learner. Halliday defines three major functions that writing serves for the writer. Writing functions on an interpersonal level when one communicates with others. The ideational function of writing is reflected as one organizes thoughts for the purpose of expressing knowledge in an orderly manner. Written expression serves a textual function when it provides coherence within a specific situational context that would otherwise be random and disorganized. Closer examination of the functions of writing may provide insight as to which skills are at once necessary, useful, and motivating for the learner.

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<sup>1</sup> Michael Alexander Kirkwood Halliday, Learning How to Mean: Explorations in the Development of Language (London: Edward Arnold, Ltd., 1975), 37.

The developmental aspects of writing progress are identified by Froese.<sup>1</sup> Froese describes the writing process as a series of four stages. Writing, according to Froese, begins in kindergarten or first grade as children exhibit a growing competency in oral language and begin learning the basic vocabulary of literacy. The next stage of writing is dictation, which begins when the child is more skilled at oral language. During the dictation stage, the child may show difficulty with letter formations and may have only a vague sense of sentence formulation. The next stage is identified as independent writing, although the child may begin this transition stage quite dependent on feedback from others. Initially, the would-be independent writer may require much assistance to accomplish writing conventions. Spelling, word selection, and organization of ideas may be obstacles to expression. The final stage Froese identifies is language expression, which is characterized by the ability to take on different points of view, draw from a rapidly expanding vocabulary, and use mechanics in a fairly skillful manner.

Hall manages the complexity of the writing process by dividing the process into three stages and identifying

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<sup>1</sup> Victor Froese, "Understanding Writing," Language Arts 55, no. 7 (1978): 811-15.



skills developed at each stage.<sup>1</sup> Prewriting is the stage during which the skills of thinking and organizing are developed. During the writing stage, language skills, including vocabulary and sentence structure, and the skills related to the conventions of spelling, handwriting, and mechanics are developed. The postwriting stage focuses on the skills of editing and revising. Tasks can be prescribed at each stage to facilitate written language through skill development.

#### Research Related to the Written Expression of Learning Disabled Students

As limited and delayed as writing research in general appears to be, it is impressive when compared to the research conducted to study the writing abilities of the learning disabled child. Very limited studies have been reported in this area, despite Lerner's contention that deficits in written language are the most prevalent characteristic of the learning disabled child's communication disability.<sup>2</sup> Furthermore, certain aspects of the empirical work in learning disabilities have been criticized to the point of making the results of the few available studies suspect. Torgesen and Dice reviewed eight major journals

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<sup>1</sup> Janice K. Hall, Evaluating and Improving Written Expression: A Practical Guide for Teachers (Boston: Allyn and Bacon, 1981), 36.

<sup>2</sup> Lerner, 23.

during the years 1976-78 to determine the methodological characteristics of LD research.<sup>1</sup> One major area of interest concerned the operational definition of learning disabilities employed in the studies. Torgesen and Dice report 64 percent of all studies investigated selected LD children based on a discrepancy between expected grade level and actual academic achievement. In the absence of an universally accepted operational definition of learning disabilities, Torgesen and Dice suggest that most studies adhere to broadly defined groups of subjects and that the heterogeneity of the samples is widely accepted by researchers.

To minimize the effects of an ill-defined sample, LD research reported for this study has been limited to studies which included characteristics of the sample and criteria for inclusion. Most studies reviewed define learning disabled students as those students identified as LD by the school district they attend and as students who perform below expected academic levels, usually reported as a reading deficit.

Much of the information about the learning disabled child's writing abilities stems from the work of

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<sup>1</sup> Joseph K. Torgesen and Carl Dice, "Characteristics of Research in Learning Disabilities," Journal of Learning Disabilities 13, no. 9 (1980): 7.

Myklebust.<sup>1</sup> Myklebust reports that the writing of a learning disabled child differs from that of a nondisabled child in syntax, ideation, and number of words. Learning disabled students received significantly lower scores than nonlearning disabled students in the areas of syntax and ideation.<sup>2</sup> Learning disabled students also exhibited reduced productivity when compared to nondisabled peers, as indicated by a lower total number of words and fewer words per sentence in writing samples. Furthermore, Myklebust noted learning disabled students were poorer spellers and worked more slowly than nonlearning disabled students.

Poteet reports LD students write 50 percent fewer words and sentences with more punctuation errors and word omissions than nonlearning disabled peers.<sup>3</sup> He indicates that differences in ideation, syntax, and conventions are minimal. These results suggest the productivity component of written language, i.e., the total number of words written, needs further development for the LD child. Since LD students write half as many words as nonlearning disabled students, approximate forms of intervention might

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<sup>1</sup> Helmer R. Myklebust, Picture Story Language Test, vol. 1 of Development and Disorders of Written Language (New York: Grune and Stratton, 1965), 34-35.

<sup>2</sup> Myklebust, Studies of Normal and Exceptional Children, 82.

<sup>3</sup> Poteet, Characteristics of Written Expression.

include ways to encourage or facilitate more written products from the learning disabled writer. More opportunities to begin and sustain writing may encourage more active participation in the writing process through increased practice.

Spelling errors have been found by Hermreck to be more prevalent in the learning disabled student's writing than in the writing of nondisabled peers.<sup>1</sup> In a study of students in grades three through six, LD students had significantly more spelling errors than nonlearning disabled students. Hermreck also reports differences in the total number of words and the use of conventions, such as capitalization and punctuation, which are observable although not statistically significant.

Alley and Deshler find LD writing is characterized by a limited word pool, a high frequency of mechanical errors, and poor organization of ideas.<sup>2</sup> These results are consistent with the studies previously cited.

Poplin et al., have studied the writing abilities of learning disabled students in comparison to those of nonlearning disabled students.<sup>3</sup> Their findings indicate

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<sup>1</sup> Hermreck, 3.

<sup>2</sup> Alley and Deshler, 16.

<sup>3</sup> Mary Poplin et al., "A Comparison of Components of Written Expression Abilities in Learning Disabled Children at Three Grade Levels," Learning Disability Quarterly 1, no. 4 (1980): 46-53.

that LD students in grades three through eight score significantly lower than nonlearning disabled students on a measure of writing abilities. Using the Test of Written Language, Poplin and associates report learning disabled students score lowest in mechanical and conventional components of written expression, specifically, word usage, spelling, and style.<sup>1</sup> Interestingly, the researchers indicate the least variance (less than one standard deviation below the mean) in the conceptual areas of vocabulary and thematic maturity. Poplin and her colleagues suggest teachers should focus upon the purposeful and meaningful aspects of written language initially and postpone instruction in less relevant mechanical aspects until the learning disabled writer attains a minimal level of success and confidence.

#### Research Related to Metacognition

Education has relied heavily on the fields of psychology and neurology to provide insight into the nature of learning. An information processing approach to the study of learning provides one way to focus upon psychological and neurological correlates of learning difficulties. Psychological and neurological processes appear to fall within two categories--those not under conscious control and

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<sup>1</sup> Hammill and Larsen.

those that can be engaged by the learner. Two types of cognitive activity are identified by Mussen et al.<sup>1</sup> Undirected cognitive activity is the free flow of thoughts, ideas, impressions, including free associations, and dreams. This type of cognitive activity may be unsolicited, of indefinite duration, and quite random. In contrast to undirected cognition, directed cognitive activity is specifically evoked during problem situations. These problem-solving processes include perception and interpretation of the problem, memory of previously successful interventions, generation of possible new solutions, and evaluation of effectiveness. Educators are particularly interested in the processes, cognitive behaviors, and strategies that can be employed upon command and can be selectively applied to learning situations.

Sheinker, Sheinker, and Stevens describe three overlapping and frequently difficult-to-distinguish areas of research in cognitive strategies instruction.<sup>2</sup> The first of these areas is the category of cognitive behavior modification, which is defined as the modification of overt behavior through change in covert thought processes. Cognitive behavior modification relies on methods of

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<sup>1</sup> Mussen et al., 277.

<sup>2</sup> Alan Sheinker, Jan Sheinker, and Linda Stevens, "Cognitive Strategies in Teaching the Mildly Handicapped," Focus on Exceptional Children 17 (1984): 3.

self-monitoring, self-instruction, and self-evaluation. A second area of cognitive strategies instruction focuses on comprehension monitoring, which refers to the act of regulating and evaluating one's comprehension processes. The authors report specific comprehension-fostering activities can reduce comprehension failure and increase understanding. The third category of cognitive strategies instruction is metacognition, the awareness and control of one's thinking processes. Sheinker et al. suggest researchers differ in their definitions and use of cognitive strategies. While the category of metacognition appears to be broader in scope than cognitive behavior modification and comprehensive monitoring, it is frequently difficult to delineate categories.

The area of developmental psychology which studies these learner-initiated cognitive behaviors is known as metacognition. Metacognition, according to Meichenbaum, refers to the conscious use of self-regulatory mechanisms during a continuing attempt to learn a skill or approach a problem.<sup>1</sup> Brown identifies these megacognitive processes: (1) analyzing and characterizing the problem at hand, (2) reflecting upon what one knows or does not know about the solution, (3) devising a plan of attack, and

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<sup>1</sup> Meichenbaum, Teaching Thinking, 3.

(4) checking or monitoring one's own progress.<sup>1</sup> Metacognitive strategies which are applied to facilitate these processes include verbal rehearsal of what to do, asking self-questions to clarify thinking, and making self-statements to direct actions. Although metacognitive strategies are consciously evoked, they are usually applied at a subvocal level. They are internalized responses which result in external or overt changes in behavior. For most efficient learners, metacognitive processes are executed at an automatic level through the effective use of metacognitive strategies as the need for problem-solving skills arises.

Metacognitive strategies are learned skills which improve with training. Borkowski and Cavanaugh believe metacognitive skills can be taught and suggest a training procedure to strengthen these skills in learners.<sup>2</sup> The training procedure relies on general rather than specific problem-solving techniques.

The study of metacognition has recently been introduced to the field of learning disabilities. Research in

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<sup>1</sup> Ann L. Brown, "Knowing When, Where, and How to Remember: A Problem of Metacognition," in Advances in Instructional Psychology, ed. R. Glaser (Hillside NJ: Lawrence Erlbaum Assoc., 1978), 46.

<sup>2</sup> John G. Borkowski and J. Cavanaugh, "Metacognition and Intelligence Theory," in Intelligence and Learning, eds. M. Friedman, J. Day, and N. O'Connor (New York: Plenum Press, 1980), 45.



this area is being used to develop theories regarding ways the learning disabled child organizes and engages thinking skills. Tarver and her colleagues suggest learning disabled children are developmentally delayed in their use of metacognitive strategies.<sup>1</sup> In experimental tasks, LD children were unable to develop appropriate responses when information was centrally available. While nondisabled children were able to engage in verbal rehearsal and selective attention, two metacognitive strategies which resolved the task requirements, learning disabled students failed to use metacognition. Tarver et al. interpret the results as an indication that LD students lag behind nonlearning disabled students in the use of metacognitive strategies.

Torgesen and Goldman, studying performance on memory tasks, find learning disabled students do not use mnemonic strategies as efficiently as nonlearning disabled students.<sup>2</sup> While efficient learners consistently employ verbal rehearsal as a mnemonic strategy, learning disabled children seem unaware of rehearsal as a strategy which can be consciously applied. Torgesen and Goldman conclude performance of learning disabled students may improve if the learning environment includes clues and suggestions in the use of effective task strategies.

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<sup>1</sup> Tarver et al., "Verbal Rehearsal," 375-85.

<sup>2</sup> Torgesen and Goldman, 56.

Blank and Bridger have studied inefficient young readers to discern how learning disabled students classify incoming information.<sup>1</sup> They suggest LD students have "verbal deficiencies" in abstract thinking and are unable to organize incoming information into meaningful units. This inability to develop an encoding system affects the retrieval of information. The encoding process--the classification of incoming information--involves the use of strategies at the metacognitive level. Blank and Bridger suggest that learning disabled children have deficiencies in the use of these strategies.

Results of studies by Hallahan and Kneedler indicate that learning disabled children lack an awareness of potentially successful strategies that would be readily applied by efficient learners.<sup>2</sup> Similarly, Torgesen finds learning disabled students lack an awareness of possible strategies.<sup>3</sup> The inability to spontaneously exercise control over available strategies indicates the learning disabled child's difficulty in learning may be at the metacognitive level.

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<sup>1</sup> Marion Blank and Wagner H. Bridger, "Deficiencies in Verbal Labeling in Retarded Readers," American Journal of Orthopsychiatry 36 (1966): 840.

<sup>2</sup> Hallahan and Kneedler, 4.

<sup>3</sup> Joseph K. Torgesen, "Conceptual and Educational Implications of the Use of Efficient Task Strategies by Learning Disabled Children," Journal of Learning Disabilities 6 (1981): 18.

Torgesen conceptualizes the learning disabled child as an inactive learner and contrasts the LD child with an active, efficient learner.<sup>1</sup> The active learner applies adaptive strategies appropriate for a particular task because of a cognitive awareness of the availability of potentially successful strategies. Cognitive awareness extends to an awareness of one's own cognitive processes and to an awareness of the demands of the task at hand. Furthermore, the active learner is goal-directed and purposely sets out to complete a task. Motivation is evident in the child's intent to learn about or from the particular task and is demonstrated by the active learner's proactive approach to the problem. As a result of an intent to learn, the active learner develops a plan of action to approach the learning task.

Inactive or inefficient learners, however, are quite different from their active counterparts. Their differences, Torgesen emphasizes, lie in performance deficits rather than ability deficits. One characteristic of the learning disabled child that may contribute to performance deficits is immaturity. Torgesen suggests the LD child is an inactive learner who's cognitive and personality

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<sup>1</sup> Joseph K. Torgesen, "Implications of the Learning Disabled Use of Efficient Task Strategies," Journal of Learning Disabilities 13 (1980): 19.

development are less mature than those of active learners.<sup>1</sup> Blank and Bridger, Koppitz, and deHirsch et al., also recognize the LD child's immaturity in cognitive and personality development.<sup>2</sup> Torgesen suggests this immaturity results in an unrealistic self-assessment--one in which the LD child is unable to realistically assess personal strengths and weaknesses. Furthermore, the LD child appears to be unaware of the fact that one can assume responsibility for one's own learning behavior. Learning disabled children appear to rely on external factors, such as materials or teachers, as the determinants of learning rather than assuming responsibility for their own progress. The LD child's immaturity is also reflected in a lack of awareness of one's own cognitive abilities as demonstrated by an inability to selectively apply appropriate cognitive strategies to tasks. The inability to recognize or apply effective cognitive strategies is related to the LD child's lack of awareness of the demands of the task. Uncertain of what to do, and uncertain of how to get whatever it is done, the LD child remains inactive. Torgesen extends

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<sup>1</sup> Torgesen, "Implications," 19.

<sup>2</sup> Blank and Bridger, "Deficiencies in Verbal Labeling," 840; Katrina deHirsch, Jeanette Jansky, and William S. Langford, Predicting Reading Failure (New York: Harper & Row, 1966), 137; Elizabeth M. Koppitz, Children with Learning Disabilities: A Five-Year Follow-Up Study (New York: Grune and Stratton, 1971), 46.

the LD child's inactivity to include a lack of motivation or a lack of intent to learn. Stevenson et al., suggest LD students do not participate as actively as they could as indicated by their ratings as more dependent, less hard-working, more impulsive, and less capable of understanding directions than nonlearning disabled students.<sup>1</sup> Unaware of what is expected, the LD child is unable to develop a plan to solve the problem, unwilling to participate in a task that remains unclear and unapproachable, the LD child remains inactive.

Hallahan and Kneedler also suggest the learning disabled child is unable to adapt to a learning task because of inefficient and disorganized strategy use.<sup>2</sup> As a result, the learning disabled child needs repeated trials in a structured setting and is constantly involved with reteaching. Hallahan and Kneedler's research implies the LD child is not actively involved in the learning process, and, therefore, is not benefiting from much of the learning stimuli available.

The learning disabled student's deficiencies become most pronounced in situations which require generalization and the carryover of learning to new tasks. McLesky,

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<sup>1</sup> H. W. Stevenson, A. C. Friedrichs, and W. E. Simpson, "Interrelations and Correlates over Time in Children's Learning," Child Development 41 (1970): 625.

<sup>2</sup> Hallahan and Kneedler, 14.

Rieth, and Polsgrove suggest learning disabled children are unable to generalize beyond instructional settings and appear to be particularly tied to materials.<sup>1</sup> As a result, learning is locked at the materials level and does not expand to the process level. The LD child tends to depend on external prompts provided by the materials rather than focusing on internal cues related to the processes involved in the task. Without an efficient information processing system and without a repertoire of metacognitive strategies, the learning disabled child is limited in the ability to transfer learning to new situations.

Butterfield and Belmont have reviewed over one hundred training studies involving retarded and learning disabled subjects and have reported the conspicuous absence of generalized improvement across settings or over time.<sup>2</sup> Not one study indicated effectiveness in facilitating generalization. Interestingly, not one study focused upon metacognitive skill training, but rather each emphasized

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<sup>1</sup> James McLesky, Herbert J. Rieth, and Lewis Polsgrove, "The Implications of Response Generalization for Improving the Effectiveness of Programs for Learning Disabled Children," Journal of Learning Disabilities 5 (1980); 59.

<sup>2</sup> Earl C. Butterfield and John M. Belmont, "The Instructional Approach to Developmental Cognitive Research," in Perspectives in the Development of Memory and Cognition, eds. Robert V. Kail and John Hagen (Hillsdale NJ: Lawrence Earlbaum, 1977), 64.

specific instruction in subordinate skills. Butterfield and Belmont also reviewed six studies which do report generalization of learning. These six studies all involve teaching at the metacognitive level, such as teaching students to set goals, design plans, monitor progress, and evaluate results. The authors suggest teaching at the metacognitive level is the key to achieving generalization.

Meichenbaum emphasizes generalization will not occur for the learning disabled child without specific intervention in the form of a concentrated effort on the part of educators.<sup>1</sup> Meichenbaum suggests metacognitive skill training can be incorporated into the learning disabled child's personalized learning program just as one programs reading or math. Finally, Meichenbaum suggests metacognitive skill training is just as important as academic subjects.

#### Research Related to Written Language Interventions

##### General Interventions

Daigou emphasizes the importance of prewriting activities to generate and shape substance, to clarify meaning, and to suggest further possibilities to the

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<sup>1</sup> Meichenbaum, Teaching Thinking, 13-15.

writer.<sup>1</sup> Prewriting activities take the form of discussing the subject, brainstorming ideas, exchanging parallel experiences, role playing, and referring to similar or contrasting events in the media. Daigon further suggests that successful writers rarely require a formal outline for short assignments and tend to ignore prewriting devices. A distinctive feature of efficient writers appears to be their ability to explore, plan, and rehearse their compositions by "listening" to an inner voice which directs the writing process by judging and reshaping each possibility. Daigon's findings suggest the feasibility of developing a sense of internal direction within the inefficient writer as a means of improving writing performance. The cognitive activity which Daigon identifies as an inner voice or internal direction is an example of metacognition. Exploring, planning, rehearsing, judging, and reshaping are strategies the efficient writer employs at the metacognitive level to direct the writing process.

One form of prewriting activity involves planning in written form using conventional or internal outlining techniques. A form of outlining specifically developed for narrative writing is described by Mandler and Johnson.<sup>2</sup>

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<sup>1</sup> Arthur Daigon, "Toward Righting Writing," Phi Delta Kappan, Dec. 1982: 242-46.

<sup>2</sup> J. Mandler and N. Johnson, "Rememberance of Things Parsed: Story Structure and Recall," Cognitive Psychology 9 (1977): 111-51.



A story structure, sometimes referred to as a story grammar, is a planning device which allows the writer to organize the pertinent parts of the story before writing. A typical story structure contains the following elements: a setting, an initiating event, an internal response (an emotional response followed by a goal), an attempt, a consequence, and a reaction. Mandler and Johnson recommend the story structure to organize story information and to facilitate narrative writing.

Another device for developing story structure is the story circle suggested by Jett-Simpson.<sup>1</sup> To develop a story circle, the writer divides a large circle into six equal sections and numbers the sections sequentially clockwise beginning at the top of the paper. The writer illustrates an action or event from the story in each section and progresses chronologically toward the ending. Drawings, which are the writer's rehearsal for the story, are the organizational tools used to plan the story prior to writing.

Rubin provides an alternative approach to teaching story structure.<sup>2</sup> A schematic representation of the story is developed by creating a story tree. Ideas or events are listed with supporting details branching from central

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<sup>1</sup> M. Jett-Simpson, "Writing Stories Using Model Structure: The Story Circle," Language Arts 58 (1981): 295.

<sup>2</sup> A. Rubin, "Making Stories, Making Sense," Language Arts 57 (1980): 288.

themes. Relationships between story elements are indicated by connecting lines. The story tree as a basic planning strategy organizes information by forming relationships and by suggesting sequence in a schematic form.

The directed writing activity outlined by Blake and Spennato is a technique designed to guide students through the writing process.<sup>1</sup> Adaptable for any type of writing task, the directed writing activity consists of six steps: prewriting, framing the writing assignment, writing the assignment, revising the draft, editing, and writing the final draft. The six steps are outlined in detail for the writer and provide an incremental approach to the writing task. Directed writing activities have been successful in developing self-directing and self-monitoring skills in some writers.

#### Specific Interventions for Language Impaired Students

Historically, specific interventions for language impaired students, including learning disabled students with written language deficits, have emphasized the use of the visual-auditory-kinesthetic-tactile (VAKT) method of instruction. The VAKT method derives theoretical

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<sup>1</sup> H. Blake and N. A. Spennato, "The Directed Writing Activity: A Process with Structure," Language Arts 57 (1980): 317-18.

support from the work of Hebb.<sup>1</sup> The multisensory approach is thought to remediate weak sensory channels by developing strong sensory channels and relying on the strong channels to integrate incoming information for the child. Most VAKT interventions focus on the mechanical aspects of writing and utilize the multisensory approach to teach handwriting. Strauss and Lehtinen, for example, were among the first specialists to suggest a technique for VAKT instruction in the formation of cursive letters.<sup>2</sup> Their approach suggests teaching letters in isolation on appropriately lined paper. Since Strauss and Lehtinen favored remediating weak areas as opposed to concentrating on strengths, a nonwriter would begin with this approach regardless of the child's facility with other language skills. Strauss and Lehtinen also noted the day-to-day variability in performance of the brain-injured child and the importance of observing behavior continuously during the learning task. They suggested an analytical approach based on the special needs of the child rather than one specific approach for all children.

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<sup>1</sup> D. O. Hebb, The Organization of Behavior (New York: Wiley, 1949).

<sup>2</sup> A. A. Strauss and Laura Lehtinen, Psychopathology of the Brain-Injured Child, Vol II (New York: Grune and Stratton, 1955), 136-38.

Fernald developed a multisensory approach that integrates reading and writing skills.<sup>1</sup> Using a tracing or hand-kinesthetic method of instruction, Fernald introduces and reinforces reading vocabulary through writing. Several important features are inherent in Fernald's approach. First, there is an emphasis on motivation to write, which is developed by allowing the child to select the target words. Secondly, words are written as whole units, without an emphasis on isolated letters, sounds, or symbols. Finally, words are used in context to develop meaning along with recognition.

When recommending techniques for students with writing disorders, Cruickshank focuses on the mechanical aspect of handwriting.<sup>2</sup> Cruickshank recommends a kinesthetic approach to writing and suggests a specific sequence for instruction. His approach is essentially remedial handwriting rather than expressing ideas in written form. Inherent in this approach is the assumption that adequate handwriting is a prerequisite for written expression.

Johnson and Myklebust suggest that a remediation program to correct formulation and syntax difficulties in

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<sup>1</sup> Grace M. Fernald, Remedial Techniques in Basic School Subjects (New York: McGraw-Hill, 1943), 23.

<sup>2</sup> William Cruickshank, A Method for Brain-Injured and Hyperactive Children (Syracuse, NY: Syracuse Univ. Press, 1961), 49.

written language should consist of three steps.<sup>1</sup> First, the learning disabled child needs to recognize errors in writing when the work is read aloud. Second, the child engages in verbal rehearsal by oral practice in ordering ideas and content. Third, the child engages in actual writing experiences by progressing through four levels: concrete-descriptive, concrete-imaginative, abstract-descriptive, and abstract-imaginative. Johnson and Myklebust offer a hierarchical approach to written language development, but they fail to include sufficient detail to facilitate extensive programming. Furthermore, as Graves notes, verbal rehearsal does not necessarily improve written language, since writing is more than talk written down.<sup>2</sup> Written forms of planning have been found by Graves to be more effective than discussion in helping a student organize thoughts.

The Fitzgerald Key method of teaching written language was specifically developed for use with the hearing impaired.<sup>3</sup> Since its publication in 1966, however, the Fitzgerald Key has also been used with children who have

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<sup>1</sup> Doris Johnson and Helmar R. Myklebust, Learning Disabilities: Educational Principles and Practice (New York: Gruen and Stratton, 1967), 17, 22.

<sup>2</sup> Donald H. Graves, "An Examination of the Writing Processes of Seven-Year-Old Children, Research in Teaching English 9 (1975): 227-41.

<sup>3</sup> Edith Fitzgerald, Straight Language for the Deaf (Washington, D.C.: The Volta Bureau, 1966), 45-53.

learning disabilities, language disorders, or language delays. A highly structured approach, the Fitzgerald Key develops vocabulary and concepts by teaching word classification. The Key is a framework of categories into which word classes fit. The categories, which are arranged as headings across the page, are: a, an, the/ verb/ whose/ whom, what/ where/ why/ when. The program suggests that repeated practice in ordering words and building sentences will result in fluency and accuracy in written language. Furthermore, Fitzgerald found that children with verbal language delays (such as the hearing impaired), eventually use written language to strengthen verbal skills.

The Fitzgerald Key served as the model for the Fokes Sentence Builder, which was developed in 1976.<sup>1</sup> The Fokes Sentence Builder uses the same categories as the Fitzgerald Key, but it includes a pictorial categorization system as well. Although the Fokes Sentence Builder was designed to facilitate oral language, the author maintains it can be used effectively as a component of a written language program.

Both the Fitzgerald Key and the Fokes Sentence Builder require the ability to classify words, recall rules, and interpret symbols. These tasks may be more attainable for

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<sup>1</sup> Joann Fokes, Fokes Sentence Builder (New York: Teaching Resources, 1976), xi.

the hearing impaired child than for the language or learning impaired child. Furthermore, extra effort may be necessary to balance the naturalness and spontaneity of language with the structure and order these systems demand.

Another approach adopted from the hearing impaired is Sentences and Other Systems by Blackwell et al.<sup>1</sup> Blackwell's approach is based on transformational grammar, which suggests that meaning or deep structure is transformed by rules to become an utterance or surface structure.<sup>2</sup> While transformational grammar is a system of describing language, the authors concede it is not in itself a base for instruction. However, Blackwell et al. suggest deep structure (meaning) should be the focus of language development. Their approach uses complete sentences rather than word categories and builds complexity by expanding the basic kernel sentences to express new meanings. There are five basic kernel sentence patterns which form the base upon which complex sentences are constructed. While this approach has been used successfully with hearing impaired students, it requires modification

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<sup>1</sup> Peter M. Blackwell et al., Sentences and Other Systems: A Language and Learning Curriculum for the Hearing Impaired (Washington, D.C.: Alexander Graham Bell Assoc. for the Deaf, 1978), 13-20.

<sup>2</sup> Noam Chomsky, Aspects of the Theory of Syntax (Cambridge: MIT Press, 1965), 54.

for use with the learning disabled student. The learning disabled child may be unable to analyze the linguistic components of a sentence or label the components correctly. Therefore, tree diagraming may be an inappropriate aspect of Sentences and Other Systems for the learning disabled child.

The Phelps Sentence Guide is a hierarchical program which progresses through nine stages: (1) simple sentences, (2) expanding the subject, (3) expansion of the predicate, (4) editing practice: sentences, (5) verb tenses, (6) editing practice: verb tenses, (7) paragraph development, (8) editing practice: paragraphs, and (9) advanced applications.<sup>1</sup> The program relies on teacher demonstration of increasingly complex forms of encoding. An important aspect of the Phelps Sentence Guide is the emphasis on generating sentences rather than combining or altering sentences. The program also relies on interactive questioning techniques to actively involve the child in written language production. The Phelps Sentence Guide is an eclectic approach which combines aspects of the Fitzgerald Key program with Johnson and Mykelbust's hierarchical language development approach.<sup>2</sup>

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<sup>1</sup> Trisha Phelps-Gunn and Diana Phelps-Terasaki, Written Language Instruction, Theory and Remediation (Rockville, MD: Aspen Publications, 1982), 101.

<sup>2</sup> Fokes, xi; Johnson and Myklebust, 223.



An unique approach to written language intervention is presented by Clay Starlin.<sup>1</sup> Developed specifically for special education students with academic deficiencies, Starlin's approach is based on direct instruction and precision teaching techniques. The writing curriculum focuses upon nine subdivisions of writing: (1) handwriting, (2) spelling, (3) capitalization, (4) punctuation, (5) sentence structure, (6) paragraph structure, (7) grammatical usage, (8) vocabulary usage, and (9) creative writing. Each of these nine areas is developed by applying the concepts of pinpointing, proficiency, evaluation, instructional placement, learning measurement, and generic teaching tactics. For each subdivision, a curriculum ladder is developed by breaking down or slicing outcome goals into specific subskills. Starlin concludes that the most rapid learning in each area of writing results when appropriate slicing of curriculum instruction-demonstration, direct practice, and incentives and consequences are effectively combined. Measurement of learning is done regularly by monitoring performance on a specific skill for a standard interval of time to determine fluency and accuracy. Starlin suggests that fluency and accuracy are equally important, since incompetent writers demonstrate a

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<sup>1</sup> Clay M. Starlin, Iowa Monograph: On Reading and Writing (Des Moines, IA: Dept. of Public Instruction, 1982), 11.

lack of proficiency due to an over emphasis on accuracy and an under emphasis on fluency. Several other distinctive features of Starlin's approach are noteworthy.

First, he considers handwriting the most important of the nine subdivisions of writing since it is the first step toward written communication. Second, he insists writing instruction be delayed until reading proficiency (i.e., 150-250 words correct/ minute, with 5 or few errors/ minute) is attained.

#### Metacognitive Interventions

Although not specifically labeled as a metacognitive approach by the authors, the learning strategies approach developed by Alley and Deshler appears to intervene more on the metacognitive level than on the specific skill level. Alley and Deshler define learning strategies as "techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage, and retrieval of information across situations and settings."<sup>1</sup> A distinction can be made between learning activities, which are at the skill level, and learning strategies, which are applied at the metacognitive level. Activities tend to be content specific, tied to particular time slots, subjects, and materials. Activities are directed toward

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<sup>1</sup> Alley and Deshler, 13.

a specific output and terminate upon the completion of the product. Strategies, however, are content free, not bound in time, topic, or materials. Strategies are intended to transcend the limits of the classroom and extend to learning situations beyond school settings. Broad-based approaches to learning tasks, strategies represent general efforts to solve a variety of related problems. Effective strategies are durable, reusable, and consistently productive.

Meichenbaum suggests a series of steps to serve as a basis for intervention on the metacognitive level.<sup>1</sup> His guidelines serve as a sequential approach to develop metacognitive strategies. Meichenbaum's initial step involves analysis of the target behaviors through observation of and interview with the child. He suggests the teacher attempt the task to perceive first hand what the demands of the task are. Information collected in this step should indicate what makes a significant difference in the child's performance; that is, what might make it better, what might interfere. The second step requires listening to the child for thoughts or feelings that might be interfering with learning. The child provides affective clues related to the inability to perform the task. Focus

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<sup>1</sup> Meichenbaum, Teaching Thinking, 13-15.

upon these clues may give educators insight as to how to develop a sense of self-efficacy within the child.

Selection of training tasks is critical in training for generalization. The task needs to be closely related, according to Meichenbaum, to the target behavior. Through incremental variation of task requirements, the child approaches a generalized understanding of the related tasks. Meichenbaum emphasizes the importance of providing feedback to the child. The most effective form of feedback is genuine success in the form of new accomplishments. When a child feels successful with a strategy, the next step is to imagine other situations in which the strategy might work. Meichenbaum recommends the use of multiple training settings and multiple trainers to facilitate generalized learning.

Bernice Wong has developed a metacognitive training program for learning disabled adolescents who were experiencing difficulty in reading comprehension.<sup>1</sup> Her research indicates learning disabled children recall significantly fewer main ideas from stories than nonlearning disabled children. She also notes that learning disabled students are inactive learners who remain passive in the reading situation. Furthermore, learning disabled students show

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<sup>1</sup> Bernice Y. L. Wong, "Increasing Retention of Main Ideas Through Questioning Strategies," Learning Disability Quarterly 2 (1979): 42.

a lack of awareness of strategies needed in reading comprehension. Wong reports learning disabled students are unable to self-monitor, are unaware of what they don't understand, and are unsure of how to get help. Wong's training program to address these inabilities consists of a series of self-questions. Wong suggests self-questioning is an effective process to teach metacognitive strategies and that learning disabled students can be activated with specific metacognitive training.

A cognitive strategies approach to the mechanical aspects of written language was applied by Harth et al.<sup>1</sup> They provided sixth grade learning disabled students with mediating directions and questions in the form of self-statements and self-questions (e.g., "First I locate the title. What do I need to do--underline or use quotation marks? Which words should I capitalize?"). Harth et al. found the use of mediating cognitive strategies of self-questions and self-statements improved the performance of LD students on classroom language arts assignments.

#### Summary of Related Research

Research from the areas of written language, learning disabilities, and metacognition provides the basis for the specific interventions described in this study. Studies

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<sup>1</sup> Robert Harth, R. Johns, C. Cloud, and C. Campbell, "Mediation: How It Can Improve Problem Solving Skills," Academic Therapy 17, no. 2 (1983): 225.

have been drawn from the fields of psychology, neurology, and the cross-categorical field of psycholinguistics to formulate a multi-disciplinary approach to the problem of written expression deficits in learning disabled students.

Research in the area of written language has been slow to emerge, due in part to the difficulties involved in measurement and evaluation of writing abilities. Without valid and reliable instruments to measure progress, traditional educational research methods are difficult to apply. Limited research in the area of written language parallels limited instruction in the classroom. Until recently, writing instruction has focused on conventional subskills, i.e., spelling, grammar, punctuation, and handwriting, rather than on the expression of thoughts in a clear and meaningful written form. Reasons that writing instruction remains a neglected curricular area may include the lack of systematic methods and materials and the lack of preservice training for teachers in how to teach writing.

With limited instructional time spent on learning to write, inefficient learners may have insufficient time to acquire written language skills. The learning disabled child, who has been found to bring fewer prerequisite language skills to the writing task, is thought to benefit less than nonlearning disabled students from opportunities to learn to write. A need exists for specific intervention

to facilitate the acquisition of written language skills for the learning disabled child.

The learning disabled child has been characterized as an inactive learner who remains passive during the learning situation. Unaware of the demands required by the task, the learning disabled child appears to be unaware of possible ways to approach the problem. Learning disabled students appear to differ from nonlearning disabled students in the use of metacognitive strategies (self-initiated cognitive problem-solving skills) during a learning situation. Unlike nonlearning disabled students who recognize the demands of the task and who can discern what type of response is required, the LD child remains uncertain about what to do or how to go about getting the task done. Instructional interventions which can reduce the LD child's passivity through active involvement have an increased probability of success.

One approach that has been effective in actively involving the LD child is the learning strategies approach. Learning strategies can provide the LD child with systematic means to approach a learning problem. Learning disabled students appear to lack a repertoire of problem-solving strategies within their cognitive reach, or they are unable to self-initiate these strategies as needed. Research suggests that the performance deficits that result

can be remediated by training in recognizing and using strategies at the metacognitive level.

The writing strategy developed for use in this study, a star-shaped story structure, attempts to provide the LD writer with a systematic way to approach a problem--how to write a story. The strategy training is designed to emphasize planning and rehearsal during a structured prewriting session. Story structures have been found to be effective interventions with beginning writers.

Specific writing interventions for learning disabled students as described in the literature have been selectively effective. Reports on the LD child's passivity in the learning situation suggest a deficit in written language may be reflective of a more general deficit in the use of the problem-solving strategies. Based on the perspective of the LD child as an inactive learner, intervention is appropriate at the metacognitive level, developing the skills to facilitate cognitive awareness of the child's own behavior. Two metacognitive strategies, self-questions and self-statements, which have been found effective training techniques with LD students, have been incorporated into this study.



## CHAPTER 3

### Methodology

#### Sample Definition

Eighteen children, twelve males and six females, enrolled in special education programs in two Des Moines, Iowa public schools, were involved in this study. A three-phase procedure was utilized to determine eligibility for inclusion in the study. First, all students had been previously identified by a multidisciplinary team as learning disabled (LD) in accordance with the Iowa Department of Public Instruction (DPI) guidelines. The Iowa DPI defines the learning disabled child as one who demonstrates a severe discrepancy between intellectual functioning and achievement in one or more areas of readiness, reading, mathematics, written expression, and listening comprehension, and whose disability is not primarily due to sensory or physical impairments, mental or emotional disabilities, or cultural, environmental, or education differences.<sup>1</sup> A review of records was conducted at two Des Moines elementary schools to identify the LD population.

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<sup>1</sup> State of Iowa, Department of Public Instruction, Special Education Division, The Identification of Pupils with Learning Disabilities (Des Moines, IA: DPI, 1981), 1.

The second phase of selection of subjects was the determination of a specific learning disability in the area of written expression. Students for whom written expression goals were indicated on the Individualized Education Plans (IEPs) were identified by record review. The Test of Written Language (TOWL) was administered by the researcher who also served as the learning disabilities specialist for both schools. The TOWL, which is described in detail under Instruments, was selected because it was found by Poplin et al. to be an effective indicator of the writing abilities of learning disabled students.<sup>1</sup> The TOWL yields a Written Language Quotient (WLQ) with a mean of 100 and a standard deviation of 15. Students who scored in the range between one and two standard deviations below the mean, i.e. between 70 and 80, were identified for possible inclusion in this study.

The final phase of the sample selection applied the following criteria to potential subjects:

1. intermediate age range from 8 years 3 months to 13 years 3 months
2. enrolled in grades three through six
3. intelligence levels as indicated by performance on the Wechsler Intelligence Scales for Children -

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<sup>1</sup> Poplin et al., 46.

Revised (WISC-R) within one standard deviation above or below the mean (intelligence quotients within 115 to 85 based on full scale scores)

4. reading grade equivalents at least one but no more than three years below grade level as indicated by performance on the Woodcock Reading Mastery Test

As a result of the three-phase selection procedure subjects included in the sample were similar to the extent that all:

1. were classified as learning disabled
2. demonstrated a deficit in written language abilities
3. were within the average range of intelligence
4. were reading below grade level
5. attended grades three through six

Furthermore, the subjects were drawn from two elementary schools located within three blocks of each other in the northeast quadrant of the city of Des Moines. Both schools served a single neighborhood and drew students from essentially the same ethnic and socioeconomic communities. All subjects were Anglo and were of middle socioeconomic status.

Eighteen students were identified for participation in the study. Two students were third graders, seven were fourth, three were fifth, and the remaining six students were sixth graders. The sample consisted of six

female subjects and twelve male subjects. Identifying data of the sample are summarized in Table 1.

As indicated by the summary table, the youngest child involved in the study was 8 years 6 months old while the oldest child was 12 years 8 months. The mean age of participants was slightly less than 10 years 9 months. The most efficient reader in the group attained a reading grade equivalent of 4.7, while the least efficient reader received a score of 1.3 grade equivalent (GE). The average reading GE was 3.0, with nine scores falling below the 3.0 mark and eight scores exceeding the 3.0 mark.

#### Research Design

To determine the effects of the intervention, a three-group, planned-match, experimental design was employed. Each subject was matched to two comparable individuals on the basis of each of these separate criteria:

1. a five-point IQ interval; no more than a plus or minus five variance on full-scale WISC-R scores
2. reading grade equivalent scores within seven months
3. grade placement within one year
4. sex

This planned matching procedure yielded three groups in which inter-individual differences were reduced by considering variances in intelligence, reading ability, grade

Table 1  
Identifying Data of Subjects

Number	Grade	Reading GE <sup>a</sup>	WISC-RIQ <sup>b</sup>	Age/Months	Gender
1	3	1.3	114	104	M
2	3	1.7	105	116	M
3	4	2.0	86	124	F
4	4	2.4	86	121	F
5	4	2.4	105	117	M
6	4	2.5	98	128	M
7	4	2.0	96	126	M
8	4	2.0	93	118	M
9	4	3.0	109	118	M
10	5	2.6	103	136	M
11	5	3.8	94	142	M
12	5	4.3	86	132	F
13	6	4.7	97	138	M
14	6	4.7	94	144	F
15	6	4.5	93	135	M
16	6	3.5	89	154	M
17	6	3.5	100	152	F
18	6	4.7	98	147	F
		$\bar{x} = 3.0$ Range: 1.3 to 4.7 GE	$\bar{x} = 97$ Range: 86 to 114 IQ	$\bar{x} = 130.6$ Range: 104 to 154 Months	

<sup>a</sup> Woodcock Reading Mastery Test

<sup>b</sup> Wechsler Intelligence Scales for Children - Revised

placement, and gender. The eighteen subjects were divided into three groups of six subjects with four males and two females in each group. The groups were not matched on the basis of chronological age or specific written language abilities, although all written language scores were reported as below respective grade placements. The three groups were randomly assigned to treatments and were identified as Groups One, Two, and Three for the purpose of intervention. Identifying data of Groups One, Two and Three are summarized in Table 2.

The mean IQ scores reported for Group One was 98, with a range of 86 to 109 as indicated by performance on the WISC-R. The mean age for this group was approximately 130 months, with a range of 118 to 147 months. The average reading grade equivalent for the subjects in Group One was 3.2, with scores falling within the 2.0 to 4.7 GE range.

In Group Two the mean IQ score reported was 97, with scores ranging from 86 to 105 IQ. The mean age for this group was approximately 133 months, with a range of 117 to 152 months. Subjects in Group Two were reading at an average grade equivalent of 3.0, with individual scores ranging from 2.0 to 4.3 GE.

Reports for Group Three indicated a mean IQ of 97, with scores ranging from 86 to 114 IQ. Subjects in this group averaged approximately 130 months in age, with the

Table 2  
Identifying Data of Groups

	Grade	WISC-R IQ	Age/Months	Reading GE	Gender
<u>Group One</u>	4	93	118	2.0	M
	4	86	121	2.4	F
	4	109	118	3.0	M
	5	103	136	2.6	M
	6	97	138	4.7	M
	6	98	147	4.7	F
$\bar{x} = 97.6$ $\bar{x} = 129.7$ $\bar{x} = 3.2$ Range: 86 to      Range: 118      Range: 2.0 109 IQ      to 147 Mos.      to 4.7 GE					
<u>Group Two</u>	4	96	126	2.0	M
	4	105	117	2.4	M
	4	98	128	2.5	M
	5	86	132	4.3	F
	5	94	142	3.8	M
	6	100	152	3.5	F
$\bar{x} = 96.5$ $\bar{x} = 132.8$ $\bar{x} = 3.0$ Range: 86 to      Range: 117      Range: 2.0 105 IQ      to 152 Mos.      to 4.3 GE					
<u>Group Three</u>	3	114	104	1.3	M
	3	105	116	1.7	M
	4	86	124	2.0	F
	6	94	144	4.7	F
	6	93	135	4.5	M
	6	89	154	3.5	M
$\bar{x} = 96.8$ $\bar{x} = 129.5$ $\bar{x} = 3.0$ Range: 86 to      Range: 104      Range: 1.3 114 IQ      to 154 Mos.      to 4.7 GE					

youngest member being 104 months and the oldest member 154 months. Group Three members were reading at an average grade equivalent of 3.0, with individual scores ranging from 1.3 to 4.7.

### Interventions

The purpose of this study was to determine the effects of strategy training on the written expression of learning disabled students. To determine the effectiveness of strategy training, three groups of LD students in grades three through six were exposed to pretest, intervention, and posttest situations. While the pre- and posttest situations were identical for each group, the interventions were of three types: (1) a standard intervention designed to approximate traditional written language instruction without the utilization of writing strategies, (2) a specific intervention utilizing a writing strategy under teacher direction, and (3) a specific intervention utilizing the same writing strategy under self-direction.

### Group One

Group One was identified as the Unguided or Nonstrategy Group and served as the control. This group was subject to pretests, the standard intervention, the effects of time and writing practice, and posttests. The standard intervention consisted of exposure to a writing stimulus, completing a written product, and teacher evaluation of



the product. The standard intervention did not include prewriting activities, such as verbal rehearsal, outlining, planning, or organization of ideas prior to writing. The standard intervention did, however, include provisions for the use of additional resources, such as reference books, and opportunities for feedback during the writing session. These features were provided to maintain a natural and familiar writing environment for the students. The purpose of this group was to determine how, and with what success, LD students approach a writing task without the specific intervention of a planning strategy.

#### Group Two

Group Two was identified as the Teacher-Directed Group. This group was involved in pretests, specific intervention under teacher direction, the effects of time and writing practice, and posttests. The specific strategy developed for use in the study was the Story Star, a planning device which outlines a five-item story structure (Appendix A). Each point on the Story Star identifies a feature of narrative writing: characters, place, problem, action, and ending. The story title is entered in the center of the star. In Group Two, the strategy was employed under teacher direction, i.e., teacher initiated, teacher monitored during use, and teacher evaluated. The purpose of this group was to examine the effects of a

teach selected planning strategy on the written expression of learning disabled students.

### Group Three

Group Three was identified as the Self-Directed Strategy Group. This group was involved in pretests, specific intervention under self-direction, the effects of time and writing practice, and posttests. The intervention utilized was the identical Story Star employed with Group Two; however the approach and application differed. Subjects in Group Three were introduced to the use of the Story Star by the teacher, then instructed in techniques to monitor their own application of the strategy. The techniques in which the subjects were trained to monitor their story writing were selected from those identified by Brown as metacognitive processes.<sup>1</sup> For the purposes of this study, the metacognitive strategies employed were self-questions and self-statements. Using the Story Star as a planning device, the subjects also employed verbal rehearsal after filling in the star. To proceed from the planning stage to the written product, subjects used nine by twelve-inch tagboard cards on which were printed step-by step directions as to how to proceed toward the written product. These guidelines appeared in the form

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<sup>1</sup> Ann Brown, "Knowing When, Where, and How," 46.

of self-statements and self-questions to assist the subjects in monitoring their own progress. The purpose of this group was to examine the effectiveness of employing metacognitive processes to monitor written language. The questions the researcher asked by using this group were:

1. Can LD students be trained to engage metacognitive strategies to complete a writing task?
2. What is the effect on written language of self-directed strategy use?
3. Is there a difference between teacher-directed and self-directed strategy use on the written language of learning disabled students?

The organization of the three groups and the sources of variation are summarized in Table 3.

#### Procedures

Two training sites, one at each participating school, were utilized to conduct this study. The learning disabilities resource classroom served as the training site at each building. The rooms were similar in that both were small in size, comparably equipped and decorated, and, most importantly, both rooms were familiar settings for the subjects involved. Since the conditions under which writing occurs may have an effect on the process and product, physical changes were not made. Participation in the study did not require a change in physical surroundings for

Table 3  
Summary of Groups and Sources of Variation

Group		Sources of Variation						
One	<u>Unguided/Non-strategy</u> (Control)	<table><tr><th>Subjects</th><th>Grade</th></tr><tr><td rowspan="2">6</td><td>3 3</td><td>3-4 5-6</td></tr></table>	Subjects	Grade	6	3 3	3-4 5-6	Pretest, Standard Intervention, Time, Writing Practice, Posttest
Subjects	Grade							
6	3 3	3-4 5-6						
	Two	<u>Teacher-directed Strategy</u> (Specific Intervention, Teacher-guided)	<table><tr><th>Subjects</th><th>Grade</th></tr><tr><td rowspan="2">6</td><td>3 3</td><td>3-4 5-6</td></tr></table>	Subjects	Grade	6	3 3	3-4 5-6
Subjects	Grade							
6	3 3	3-4 5-6						
	Three	<u>Self-directed Strategy</u> (Specific Intervention, Self-guided)	<table><tr><th>Subjects</th><th>Grade</th></tr><tr><td rowspan="2">6</td><td>3 3</td><td>3-4 5-6</td></tr></table>	Subjects	Grade	6	3 3	3-4 5-6
Subjects	Grade							
6	3 3	3-4 5-6						

anyone involved. Familiar sites were selected to retain a naturalistic rather than experimental appearance to the intervention and to reduce the effects of novelty related to a change in learning environment.

### Time Line

A time line of four months of intervention was developed. Intervention consisted of three forty-five minute sessions per week over eighteen weeks. The total amount of student participation time, including preparatory, instructional, and evaluative time, was approximately thirty-six hours.

### Schedules

Three sessions were scheduled at each of the two schools. Periods two, three, four, and five, six, and seven out of an eight-period day were utilized. Since the examiner was already scheduled for one-half day at each school, the distinction of which sites would be assigned morning or afternoon sessions was predetermined. Also, to minimize disruption of classroom schedules for the students involved in the study as well as for the LD students not involved in the study, groups were assigned to periods contingent upon their regularly scheduled LD resource time as much as possible. This accommodation of schedules resulted in the following group assignments:

1. At the first school, Group One met second period, Group Two met third, and Group Three met fourth period, which involved an overall time span from 9:15 to 11:45 a.m.

2. At the second school, Group Two met fifth period, Group One met sixth, and Group Three met seventh period, which involved an overall time span from 12:20 to 2:50 p.m.

The schedules were comparable on the following features: (1) all students had been in school at least one hour prior to the training session and had to attend at least one more class before lunch or dismissal afterwards; (2) all periods were forty-five minutes in length, with five minutes for passing time before and after the session; and (3) subjects retained their regularly scheduled resource time whenever possible, with four out of eighteen subjects required to change within one period.

#### Background of Subjects and Previous Instruction

All subjects were continuing students in the special education program who had been receiving LD resource service from a range of two to five years. All subjects had been placed with the examiner for a minimum of five months, with some students assigned as long as one year and five months. While students had previously received instruction in written language from the examiner during their resource time, students did not receive specific instruction in strategy use. Previous instruction had been of the

standard type, i.e., an individualized program based on personal writing, such as journals and informal letters, and story writing based on personal experiences. Students were involved to varying degrees in writing activities in their regular classrooms as well. However, since the planning strategy used and the conditions under which it was employed were developed specifically for this study, it is unlikely that the subjects had been exposed to them prior to the training period. Furthermore, pretest data and selection criteria indicated that all subjects were deficient in the area of written language and had, therefore, encountered below average levels of success in that area.

#### Daily Routine

To ensure consistency of procedures across the groups, a daily routine was established to conduct the training sessions. The daily routine consisted of the following components: preliminary activities (including attendance, announcements, and housekeeping tasks); prewriting activities (including selecting a topic and preparing to write); writing; postwriting activities (including evaluation and feedback); concluding activities (clean-up and dismissal); and record keeping activities.

Preliminary activities were essentially identical for all groups. Typical teacher behavior included greeting

the students at the door, taking attendance, and making announcements as needed. As students entered the classroom, they picked up their work folders and proceeded to assigned work areas. These preliminary activities were consistent with the regular resource room routine, so all subjects were familiar with the procedures. Preliminary activities usually took about two minutes, since the groups were small, and they never extended beyond five minutes.

Prewriting activities included some activities which were consistent for all groups and some specific interventions which varied from group to group. Consistent for all groups were opportunities to select topics for the daily narrative writing assignments. Since personal selection of a topic may be related to motivation to write, students were not assigned specific topics unless they requested one. Students, however, were not restricted to their own resources to determine topics. Each student was exposed to an array of story starters from which to choose. Story starters took various forms, ranging from brief character sketches, topic sentences, word banks, and "what if . . ." statements, to picture stimuli. All subjects were exposed to, but not limited to, identical story starters. Samples of the story starters are included in the appendix.



### Group One Procedures

At the point of topic selection, a source of variance in procedures was introduced. Standard instruction in written language might typically allow students to proceed independently with the writing task after selecting topics. This procedure was employed for Group One to approximate standard intervention in the area of written language.

For Groups Two and Three, however, an additional prewriting activity was introduced. A planning device, the Story Star, was presented to serve as an intermediate step between selecting a topic and completing the story (see Appendix). The Story Star provided students with the opportunity to develop and arrange their thoughts in a systematic manner before attempting to write. For the purpose of this study, the extent to which a student was able to incorporate the Story Star into writing behavior was of primary concern. The specific procedures for Groups Two and Three are detailed below exactly as they appeared in the lesson plans.

### Group Two Procedures

Students enter the classroom, pick up individual work folders, and proceed to seats. Teacher takes attendance, makes announcements, if any, and addresses concerns or questions students may have. Students may then pick

up an Idea File from the Story Starter Box. Time limit for selection of topic is five minutes. If the student has not made a selection within five minutes, teacher assists by giving the student two choices for today's assignment.

After topic selection, students in Group Two are given a Story Star by the teacher and are directed to fill in the following information: title (which can be changed), characters, place story will occur, problem situation, action which develops from the problem, and the ending of the story. Teacher involvement during this time is to encourage on-task behavior, to assist students with spelling or word choice, and to direct step-by-step progression through the planning process. Guide questions used by the teacher include:

1. What do you think would be a good title for your story?
2. Who is this story going to be about? Anyone else?
3. Where will most of the story happen? Can you think of any other places to include?
4. What is the problem \_\_\_\_\_ (insert character) has to deal with?
5. How do the characters solve or get out of their problem situation?
6. How do you want your story to end?

After each guide question, students write their response in the designated area. Student must complete each section of the Story Star before moving on to the next section. In the event of no response, the teacher repeats the guide question and waits. If the student still is uncertain of a response, the teacher rephrases the question and uses verbal encouragement to elicit a response. Upon completing the Story Star, the teacher checks the star for spelling errors and has the student correct errors before beginning the story.

While no time limits are imposed on the students to complete the story, students are kept on-task by teacher monitoring: "How are you doing?"; "How is your story coming along?"; "I'm anxious to read your story when it is finished." Stories which need to be carried over to the next session are stored in the student's work folder. Stories which are completed are turned in to the teacher along with the Story Star for credit.

### Group Three Procedures

Students enter the classroom, pick up individual work folders, and proceed to seats. Teacher takes attendance, makes announcements, if any, and addresses concerns or questions the students may have. Students may then pick up an Idea File from the Story Starter Box. Time limit for selection of topic is five minutes. If the

student has not made a selection within five minutes, the teacher assists by giving the student two choices for today's assignment.

After topic selection, students in Group Three take out the Story Star and the accompanying guide card from their work folders. The guide card is a nine by twelve inch piece of tagboard on which questions or statements are printed in first-person narrative form to stimulate self-talk. The questions and statements are:

1. I can write about whatever I choose.
2. I can use my own idea or one from the Idea File.
3. I can plan my story before I write using the Story Star.
4. I think I like this for a title: (I'll write it on the star).
5. I know who will be in my story. I'll write their names in the characters' section of the star.
6. Where should my story take place? I'll put the place on the star.
7. In all good stories there is a problem. What could be the problem in my story? I'll write it down on the star.
8. What will my characters do about the problem? I'll fill in the solution on the star.
9. My story ends when the action is finished. How do I want my story to end? I'll fill in the ending on the star.

10. My teacher wants to see my star before I start my story.

Upon completion of the Story Star, the teacher checks the Star for spelling errors and has the student correct errors before beginning the story.

While no time limits are imposed on the students to complete the story, students are kept on-task by teacher monitoring, i.e., encouraging the students to keep writing after the self-directed planning session. Monitoring of this group is limited to elimination of inappropriate behaviors, which would include any off-task behaviors not related to the story writing lesson, that might arise.

When the stories are completed, students turn them in along with the completed Story Star. Finished stories for Group Three are read to the teacher and compared to the Story Star as part of the self-monitoring process. Stories are given credit for completion and are not returned for revisions.

#### Record Keeping and Data Collection

Each of the three groups was involved in record keeping and data collection to a varying degree. Each student involved in the study kept track of the stories written by recording the title and date completed on the work folder. This process involved the students in monitoring their progress and reinforced the completion of

assignments. Teacher-collected data included a tally of requests for assistance, a record of the number of stories completed, and the number of sessions each child spent on each story. All stories were collected by the teacher and retained for analysis of ideation, style, and mechanics.

### The Instruments

#### Test

Assessment of written language skills was made prior to intervention and at the end of the experimental treatment period. The Test of Written Language was utilized to measure writing competencies.<sup>1</sup> The TOWL considers five components of written language: mechanical, productive, conventional, linguistic, and cognitive. These components are evaluated through the use of contrived formats for the subtests of spelling, style, and word usage, and through the use of spontaneous formats for subtests of handwriting, thought units, vocabulary, and thematic maturity. Criteria for scoring and sample tests are provided. The TOWL results are reported as scaled scores and grade equivalents for each subtest. A Written Language Quotient can be computed to provide a broad index of writing competence. The TOWL was standardized on the test performance of approximately 1,700 children randomly drawn from nine

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<sup>1</sup> Hammill and Larsen.

states. Four types of reliability relative to the TOWL subtests are discussed in the manual. Internal consistency, stability, inter-scorer reliability, and standard error of measurement were studied by the authors and reported as generally adequate or high. The status of the TOWL relative to three types of validity, i.e., content, criterion related, and construct, is described by the authors. Analyses of the data presented support the concept of validity for the five principal subtests. The TOWL has previously been used in studies and has been found to be an effective indicator of writing abilities of learning disabled students by Poplin et al.<sup>1</sup> The test is normed for use at grades three through eight and takes about forty-five minutes to administer.

### Materials

Several types of materials were prepared for use in this study. An idea file of illustrations, brief character sketches, topic sentences, word banks, and "What would happen if . . . ?" statements was available to all groups. The packet provided a uniform basis upon which writing instruction was initiated. Since choice of topic may be a factor in motivation to write, all students had an opportunity to select their topics; however all students were exposed to the same range of choices.

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<sup>1</sup> Poplin et al., 46.

The third group (self-directed) received printed copies of the self-questions and self-statements to use during writing lessons. These cards were stored in the work folders and replaced as needed to ensure the students always had one available. Groups Two and Three were also provided with a Story Star, an outlining device to facilitate planning. Completing the star before beginning to write provided the students with an opportunity to organize thoughts. The points on the star were: Who, Place, Problem, Action, and Ending. The center of the star was reserved for the title. An example of a Story Star is found in the Appendix.



## CHAPTER 4

### Data Analysis

Data were collected over a thirteen-week period during the second semester of the 1981-82 school year. A total of thirty-nine instructional sessions were held. Since the focus of this study was to determine the effectiveness of strategy training on the written expression of learning disabled students, several variables related to writing skills were monitored: performance on a standardized writing test, observable behaviors during the writing session, and performance on daily writing assignments. Three types of data were collected during the intervention period:

1. pre and post TOWL scores
2. observations of writing behavior during initial, middle, and final sessions
3. writing samples for informal analysis at pre and post intervention points

The standard measure of performance, the TOWL, provided scaled scores which were converted to a measure of performance gain. The Immediate Gain Factor (IGF) was obtained for the TOWL scores by subtracting the entering or preintervention score in a given subtest from the posttest score on that subtest.

Pre and post TOWL scores were analyzed to determine the IGFs for each group. The IGFs were determined for each subtest of the TOWL as well as for the Written Language Quotient (WLQ).

Analysis of the IGFs provides a contrast between the nonstrategy group, the teacher-directed group, and the self-directed group. The total scores, referred to as Written Language Quotients, are reported as mean differences over time of 3.3 for the nonstrategy group, 7.3 for the teacher-directed group, and 24.7 for the self-directed group. These data indicate the self-directed group attained measurable gains 7.5 times greater than the nonstrategy group and 3.4 times greater than the teacher-directed group. These data are summarized in Table 4.

Scores on the vocabulary subtest of the TOWL indicated the self-guided group attained gains 3.75 times greater than the teacher-guided group and 2.5 times greater than the nonstrategy group. The nonstrategy group, however, scored 1.5 times greater than the teacher-directed group. These results are reported in Table 5.

The results of the thematic maturity subtest indicate the nonstrategy group scored an average loss of .3 during the intervention period. The groups trained in strategy use, however, attained gains of 2.2 under

Table 4  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non-Strategy	Teacher-Directed	Self-Directed
<u>TOWL</u>			
WLQ	0	8	9
	2	9	16
	3	4	11
	1	9	17
	3	12	7
	<u>11</u>	<u>2</u>	<u>14</u>
Mean IGF	3.3	7.3	24.7

Table 5  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non-Strategy	Teacher-Directed	Self-Directed
<u>TOWL</u>			
Vocabulary	2	0	1
Subtest	1	1	5
	1	1	1
	0	1	4
	2	2	2
	<u>1</u>	<u>0</u>	<u>5</u>
Mean IGF	1.2	.8	3.0

teacher-direction and 4.2 under self-direction. These data appear in Table 6.

Table 6  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non- Strategy	Teacher- Directed	Self- Directed
<u>TOWL</u>			
Thematic	-3	2	5
Maturity	0	3	4
Subtest	1	0	6
	0	2	1
	0	5	5
	<u>0</u>	<u>1</u>	<u>4</u>
Mean IGF	-.3	2.2	4.2

On the spelling subtest, both the teacher-directed and self-directed groups showed gains greater than the non-strategy group. Strategy use appears to result in gains four to five times greater than nonstrategy use in the area of spelling as measured by the TOWL. These results are summarized in Table 7.

Table 7  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non- Strategy	Teacher Directed	Self- Directed
<u>TOWL</u>			
Spelling	1	2	1
Subtest	0	2	2
	0	1	2
	0	1	3
	1	2	0
	<u>0</u>	<u>0</u>	<u>1</u>
Mean IGF	.3	1.3	1.5

Similar findings can be found in the word usage subtest. Strategy use, both teacher-directed and self-directed, appears to result in gains five times those of non-strategy use. There appears to be no measurable difference between self-directed and teacher-directed strategy use in the area of word usage. These results are reported in Table 8.

In the area of style, strategy use by students under self-direction appears to result in gains twice those of students who did not employ strategies. The teacher-directed group also showed gains, although somewhat less than the self-directed group. These data are reported in Table 9.

Table 8  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non-Strategy	Teacher Directed	Self-Directed
<u>TOWL</u>			
Word Usage	1	2	1
Subtest	0	2	2
	1	1	1
	0	3	4
	0	2	0
	<u>0</u>	<u>0</u>	<u>2</u>
Mean IGF	.3	1.7	1.7

Table 9  
Immediate Gain Factors  
Individual Scores and Group Means

	Group 1	Group 2	Group 3
	Non-Strategy	Teacher Directed	Self-Directed
<u>TOWL</u>			
Style Subtest	-1	2	1
	0	1	3
	0	1	1
	0	2	5
	0	1	0
	<u>1</u>	<u>1</u>	<u>2</u>
Mean IGF	0	1.3	2.0

Selected writing behaviors were monitored by recording frequency or duration of specific behaviors as they occurred at three intervals during the intervention period. Observations were recorded during initial, mid-point, and concluding sessions. Three methods of data collection were used:

1. teacher observation and recording
2. student self-reporting
3. third party observation and recording

Students were involved in record keeping by keeping track of the number of stories written and the dates completed. These data were collected as students completed an assignment and were recorded on the work folders. Students in Group One averaged one story per session, while students in the teacher-directed and self-directed groups required an average of three sessions to complete a story. The strategy groups, therefore, are reported to have spent three times as long on each story as the non-strategy group.

Data regarding time-on-task were collected by a practicum student from Grandview College in Des Moines, Iowa, who served as the outside observer. Time-on-task data were collected at pre, mid, and final points of intervention. The nonstrategy group appeared to be on task a mean of 25.3 minutes during the forty-five minute sessions and demonstrated an 18 percent decrease in

time-in-task from initial to final reporting. The teacher-directed group appeared to work a mean of 36 minutes per session and is reported as showing a 25 percent increase in time-on-task. The self-directed group was observed as being on-task a mean of 35 minutes per forty-five minute session, and displayed a range representative of a 100 percent increase in time-on-task from initial to final reporting. While the nonstrategy group appeared to become less task oriented, the teacher-directed group and the self-directed group appeared to become increasingly task oriented. The self-guided group reported increases four times those of the teacher-guided group, although the mean time-on-task remained the highest for the teacher-guided group. These results are reported in Table 10.

Table 10  
Writing Behavior  
Mean Time-on-Task in Minutes

Period	Group 1	Group 2	Group 3
Initial	28/45 min.	32/45 min.	20/45 min.
Midpoint	25/45 min.	36/45 min.	39/35 min.
Final	23/45 min.	40/45 min.	40/45 min.

Data regarding writing behavior were also collected by the teacher to ascertain time spent on prewriting activities



and the number of requests for assistance. The nonstrategy group spent from 0 to 4 minutes planning before beginning to write. This group generally began writing immediately. The teacher-directed and self-directed groups used approximately equal amounts of time to prepare before actually beginning to write. The length of time spent on prewriting activities, that is, on using the planning strategy, was approximately 12 to 15 minutes. These data are summarized in Table 11.

Table 11  
Writing Behavior  
Prewriting Time in Minutes

Period	Group 1	Group 2	Group 3
Initial	0	0	0
Midpoint	0	12	13
Final	4	15	13

The ability to sustain writing behavior independently was monitored by recording frequency of requests for teacher assistance. The nonstrategy group requested teacher help a mean of 13.6 times per session, with the requests remaining relatively stable over the intervention period. The teacher-directed group initiated requests a mean of 11.3 times per session, with a 66 percent decrease in the number of requests over time. The

self-guided group requested teacher assistance a mean of approximately 10.3 times per session, which represents a decline of 71 percent during the intervention period. The nonstrategy group reportedly requested assistance nearly twice as frequently as the self-directed group. These data appear in Table 12.

Table 12  
Writing Behavior  
Frequency of Requests for Help

Period	Group 1	Group 2	Group 3
Initial	15	18	21
Midpoint	14	10	4
Final	<u>12</u>	<u>6</u>	<u>6</u>
Mean	13.6	11.3	10.3

Writing samples were collected for each group at initial and concluding intervention periods. These samples were subjected to an informal analysis to examine aspects of the components of ideation, style, and mechanics. The component of ideation was measured in terms of productivity (total number of words and total number of thought units) and in terms of overall comprehensibility (easy, fair, or difficult to understand). Comprehensibility was rated according to the number of times the teacher had to read through the story to understand the

meaning. Stories which were clear with one reading were rated easy to understand; those which required two or more readings were rated fair. Stories which could not be interpreted without the help of the author were rated as difficult to understand. The component of mechanics was monitored for spelling, punctuation, and grammar. Spelling was reported as the percentage of total words spelled incorrectly. Grammar and punctuation errors were recorded as numbers of errors per first forty words.

In the area of ideation, students in the teacher-directed group produced twice as many total words as the nonstrategy group. The self-directed group wrote 2.3 times as many words as the nonstrategy group and 1.2 times as many as the teacher-guided group. Total number of thought units was greatest for the self-directed group--twice as much as the nonstrategy group and 1.3 times greater than the teacher-directed group. While all students initially wrote stories which were difficult to decipher due to incomplete thoughts, faulty reasoning, or mechanical errors, the teacher-directed and self-directed groups were able to eventually produce stories which were relatively easy to comprehend. These data are reported in Table 13.

Table 13  
Writing Sample  
Ideation

	Group 1 Pre/Post	Group 2 Pre/Post	Group 3 Pre/Post
Total numbers words	55/80	60/156	56/186
Total thought units	7/12	6/13	5/24
Comprehensibility	Difficult/ Fair	Difficult/ Easy	Difficult/ Easy

Style was monitored by contrasting the percentage of complex sentence constructions (based on complete thought units rather than exact grammar) to simple sentence constructions. Self-guided students appeared to convey complex thoughts 3.5 times more often than the nonstrategy students and 1.4 times more often than teacher-directed students. The teacher-directed group used complex sentence constructions 2.5 times more frequently than the nonstrategy group. The self-guided and teacher-guided groups showed increases in complex sentence construction to 70 percent and 50 percent respectively. These data are reported in Table 14.

Table 14  
Writing Sample  
Style

	Group 1 Pre/Post	Group 2 Pre/Post	Group 3 Pre/Post
% Simple sentences	100/80	100/50	100/30
% Complex sentences	0/20	0/50	0/70

The mechanics of spelling and grammar underwent noticeable change. The teacher-directed group reduced spelling errors nine times more effectively than the non-strategy group, while the self-directed group showed a reduction of errors six times more effective than the nonstrategy group. The teacher-guided and self-guided groups appeared to be comparable in the application of spelling and grammar/punctuation skills by the end of the intervention period. These data appear in Table 15.

Table 15  
Writing Sample  
Mechanics

	Group 1 Pre/Post	Group 2 Pre/Post	Group 3 Pre/Post
Spelling (% words incorrect)	56/45	60/5	65/8
Grammar/Punctuation (Number of errors in first 40 words)	5/6	6/1	6/1

## CHAPTER 5

### Conclusions

#### Discussion

The purpose of this study was to determine the effects of specific strategy training in writing strategies on the written expression of learning disabled students. Furthermore, the study proposed to contrast the effects of teacher-guided instruction in strategy use to self-guided instruction. The data suggest that students who received specific training in writing strategies performed better on a measure of written language than those students who did not receive specific training. The data also indicate that the students who learned to employ strategies under self-direction showed increases of 7.5 times those of students who were not exposed to strategies and 3.4 times those of students who used strategies under teacher direction. These results suggest that strategy use may lead to positive gains in skills measured by the TOWL. Scores on the vocabulary subtests, however, indicate that while self-guided strategy training may be effective in vocabulary development, teacher-directed training is not. Apparently, strategy use is not effective in vocabulary development as measured by the TOWL unless it occurs under self-direction.

Thematic maturity as measured by the TOWL appears to be positively affected by strategy use. The data suggest strategy training is an effective intervention under teacher direction and may be more effective in positively influencing thematic maturity when self-directed.

In the area of spelling, the intervention of specific strategy training appears to be equally effective under teacher-direction and self-direction. Strategy use appears to have resulted in greater gains on the spelling subtest of the TOWL than nonstrategy use.

Word usage also appears to respond to strategy training. The use of a specific strategy appears to be effective regardless of how directed. Students who learned to employ strategies under either self-direction or teacher-direction attained scores five times greater than those who did not learn strategy use. These results suggest the effectiveness of the intervention in the area of word usage. Similarly, style as measured by the TOWL appears to be positively affected by training in a specific writing strategy under both teacher-direction and self-direction.

The results of the TOWL suggest the effectiveness of the specific strategy training for the groups involved in this study. Use of a planning strategy under self-direction or teacher-direction appears to be related to positive gains on a measure of written language.

Behaviorally, students who employed strategies appear to differ from students who did not during the prewriting and writing stages of the writing process. These students spent more time preparing to write and were able to sustain the writing task for longer periods of time. Their on-task behavior improved, and they developed independent work skills not evident in the students who were not trained in strategy use. These observations suggest that in addition to measurable performance gains, strategy training may result in positive changes in writing behavior as well.

Writing samples provide further support as to the effectiveness of strategy training. Students who employed strategies under teacher-guidance and self-guidance wrote longer selections containing more complex thought units than students who were not involved in strategy use. Furthermore, spelling and mechanical errors declined in groups which were trained to use strategies as they prepared to write.

The positive results indicated by the study may be related to factors other than strategy use as well. First, students may have benefitted from the effects of practice since they were writing for three concentrated sessions per week. Increased instructional time may have been a contributing factor. Second, the students who showed increased time-on-task may have improved skills because



of increased attention to the instructional lesson. Rather than a result of the intervention, increased time on-task may have been an influencing factor. Third, students who used strategies may have found story writing easier to do than those who did not. Perhaps the students who used strategies felt more confident and motivated to participate than students who did not.

#### Comments About Determining Treatment Effects

Levels of statistical significance are not reported for several reasons. First, the study is described as a preliminary examination of the effects of intervention, rather than a definitive statement of effectiveness. The study provides the opportunity to closely examine the effects of cognitive strategy training on a limited basis within a relatively controlled academic setting. The use of cognitive strategies in academic areas is just beginning to emerge as an interest area in educational research and has not been studied extensively. Since the application of cognitive strategies to academic areas in general, and to written language specifically, has yet to be clearly described in the literature, this study claims to be a preliminary attempt to determine feasibility of further application. Second, levels of statistical significance are not reported because the

Story Star is an original planning device and has not been previously used in research. The Story Star, developed by the researcher specifically for this study, is an early attempt to apply cognitive strategies to writing. Keeping with the perspective of plausibility, the more appropriate questions lie in determining the importance and possible impact of early results in a field as new as cognitive strategies training. As noted by Tallmadge and Horst, the difficulty in developing and addressing relevant research questions lies not in determining the size of the gains but in determining their value.<sup>1</sup>

For the purposes of this study, gain scores were calculated to determine the effectiveness of intervention. Gain scores, also referred to as difference scores, have been described by Rogosa and Willet as reliable measures of change.<sup>3</sup> Zimmerman and Williams also support the use

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<sup>1</sup> G. Kasten Tallmadge and Donald P. Horst, A Procedural Guide for Validating Achievement Gains in Educational Projects (Washington, D.C.: U.S. Government Printing Office, 1976), 50.

<sup>2</sup> Tallmadge and Horst, 39.

<sup>3</sup> David R. Rogosa and John B. Willet, "Demonstrating the Reliability of the Difference Score in the Measurement of Change." Journal of Educational Measurement 20, no. 4 (1983), 117.

of gain scores to measure treatment effectiveness.<sup>1</sup> The direction of change, if any, rather than its magnitude, provides information crucial to a preliminary study. Furthermore, data regarding statistical significance of a preliminary study this size are of questionable value and may be misleading if ever reported out of context.

### Implications

While the results of this preliminary study of the effects of strategy training on the written language of learning disabled children are not conclusive, they may have implications for the learning disabled child, classroom instruction, curriculum development, and teacher training. In addition, some implications may be drawn regarding the assessment of learning. These implications are, of course, not intended to initiate change but rather to foster new areas of questioning. These implications are suggestive of new perspectives on current practices in the field of learning disabilities.

### Implications for the Learning Disabled Child

An interesting implication which can be drawn from the results of this study is that intervention for the

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<sup>1</sup> Donald W. Zimmerman and Richard H. Williams, "Gain Scores in Research Can Be Highly Reliable," Journal of Educational Measurement 19, no. 2 (1982): 149.

learning disabled child need not, and perhaps should not, be limited to specific skill deficiencies. Intervention at the cognitive level through a strategies approach appears to have a positive effect in the area of written language. The learning disabled child has been described by Torgesen and others as an inactive learner who remains detached in the learning situation.<sup>1</sup> By increasing student involvement through planning and self-monitoring (i.e., the use of self-statements and self-questions), the learning disabled child assumes a more active role in learning written language. The results of this study suggest increased involvement through the use of cognitive strategies has a positive impact on the learning disabled child's writing progress. This implication is significant in the field of learning disabilities because it delays the emphasis on mechanical skills until the conceptual aspects of written language, such as thought development and meaning, are developed. Traditionally, the instructional emphasis for learning disabled children has focused on specific skills, since skills are more readily measurable. A focus on cognitive strategies reflects a significant departure from the usual practice.

The results of this study also imply that learning disabled students can learn to use cognitive strategies

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<sup>1</sup> Torgesen, "Role of Nonspecific Factors," 27.

successfully. Learning disabled children have been described as deficient in, or inefficient in the use of, cognitive strategies.<sup>1</sup> Since learning disabled students were able to learn and successfully apply the cognitive strategies of planning and self-monitoring, intervention in the form of strategy training appears to be appropriate. Of particular interest is the idea that students may begin to generalize learning as they impose strategies in a variety of situations. A strategy which is consistently effective and readily accessible for the child may be used time after time to solve other learning problems. Furthermore, the learning disabled child's ability to learn and use one strategy effectively implies the ability to learn other strategies as well.

Additional implications may be made regarding the ability of the learning disabled child to attend to the learning task. The learning disabled child's distractibility and limited attention span have been well-documented by many sources.<sup>2</sup> Since learning disabled students who learned to use cognitive strategies were found to spend more time on task, cognitive strategies training appears to have a positive effect on attention to task. These results are consistent with the findings of Hallahan and

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<sup>1</sup> Torgesen, "Role of Nonspecific Factors," 27.

<sup>2</sup> Torgesen, "Role of Nonspecific Factors," 27.

Sapona, who suggest elementary learning disabled students increased on-task behavior and, to a lesser degree, increased academic gains through self-monitoring.<sup>1</sup> Perhaps the learning disabled child's increased involvement (reduced passivity), in addition to increased task orientation gained through planning and self-monitoring, lead to greater attention to the learning task. By applying cognitive strategies, the learning disabled child assumes more responsibility for learning written language. Along with a sense of responsibility and ownership for learning, perhaps the learning disabled child strengthens the ability to retain or regain a freedom from distractability.

#### Implications for Classroom Instruction

The results of this study suggest that learning disabled students can respond successfully to highly demanding tasks when expectations and procedures are clear. Written language, surely the most difficult of the language arts, has been described by Lerner as the most prevalent area of deficiency for learning disabled students.<sup>2</sup> The results of the study indicate that the

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<sup>1</sup> Donald P. Hallahan and R. Sapona, "Self-monitoring of Attention with Learning Disabled Children: Past Research and Current Issues," Journal of Learning Disabilities 16, no. 10 (1983): 573.

<sup>2</sup> Lerner, 221.

complex writing process can be broken down into more manageable units for learning disabled students. By expanding the writing process to include a structured planning stage, students are able to formulate and organize their thoughts before they actually begin writing. The planning stage, therefore, is an appropriate point for classroom and special education teachers to intervene. Training students to develop strategies such as planning and self-monitoring may result in improved written products. The results of this study suggest improvements may be quantitative and qualitative.

The results of this study also support the findings of Poplin et al., which suggest that instruction in written language should focus for the learning disabled child on concept development initially and on mechanics secondly.<sup>1</sup> Learning disabled students who learned the cognitive strategies of planning and self-monitoring as ways to focus on meaningful expression were more successful on a measure of written language than those students who did not.

#### Implications for Curriculum Development

As Graves noted, one of the reasons that virtually no writing instruction exists in schools today is the

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<sup>1</sup> poplin et al., 46.

absence of the methodology to teach written language.<sup>1</sup> The effectiveness of a cognitive strategies approach to writing suggests that written language may indeed be teachable. A writing curriculum which incorporates specific cognitive strategies, such as planning devices and self-monitoring techniques, may provide the methodology needed to attain a higher level of literacy in schools.

#### Implications for Teacher Training

Whiteman also documented that teachers were not trained to teach written language.<sup>2</sup> If learning disabled students, who are less proficient in language skills than nonlearning disabled students, can improve written language performance using cognitive strategies, it appears that teachers may benefit from training in the area of strategy development and use. The areas of cognitive strategies research suggested by Sheinker, Sheinker, and Stevens (i.e., cognitive behavior modification, comprehension monitoring, and metacognition), may be appropriate areas of emphasis to be included in teacher training programs at both the preservice and inservice levels.<sup>3</sup>

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<sup>1</sup> Graves, Balance the Basics, 5.

<sup>2</sup> Whiteman, 150.

<sup>3</sup> Sheinker et al., 2.



Implications for the  
Assessment of Learning

A primary difficulty in conducting this study has been in dealing with cognitive processes in measurable terms. This study relied on measures which had been previously used by Wong and others, specifically student response to planning and self-monitoring procedures.<sup>1</sup> Obviously, some assumptions are inherent in this approach. One assumption is that when a student uses a planning device or follows standard self-monitoring procedures, the student demonstrates the use of cognitive strategies. Interestingly, self-monitoring procedures are consistent with the self-regulation model, which along with classical conditioning, operant conditioning, and observational learning, is a key component of behavior analysis.<sup>2</sup> Behavioral proponents of the self-regulation model rely on performance or overt changes in behavior to determine effectiveness of self-regulation. Similarly, researchers in cognitive strategies look for observable outcomes which indicate that the strategy was employed, such as completion of the specified task or adherence to guidelines. In the absence of testing instruments which can

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<sup>1</sup> Wong, 42.

<sup>2</sup> C. Michael Nelson and Lewis Polsgrove, "Behavior Analysis in Special Education: White Rabbit or White Elephant?" Remedial and Special Education 5, no. 4 (1984): 7.

directly measure cognitive activity, alternate focus or means of measurement are needed. Linear forms of measurement, such as observable changes in behavior over time or measurable differences in performance, are helpful but clearly incomplete. New ways to approach the assessment of learning provide a formidable challenge. Perhaps a multidimensional model of assessment which can at once measure a student's perception of the task, prior knowledge, attempts at resolution, and response to the task is an impossibility. However, a minimal expectation would be that the need for alternate types of assessment would be recognized.

#### Implications for Future Research

Future research may focus on several issues to provide a more comprehensive view of the written expression of learning disabled students in grades three through six. First, a larger number of students would enable the researcher to determine statistical significance of strategy training. Hypotheses stating the effect of cognitive strategy training could be tested if the sample size were larger than the one used for the preliminary study. The favorable results of this study suggest a larger study may be feasible. Second, an increase in the time allotted for the study may be of value in monitoring writing progress. Writing development is a slow process

and more time may be required to show significant gains. Increased time for intervention would also allow for determining long range effects in addition to immediate effects. The time lapse between pre and posttests would also reduce the possibility of test-retest effects.

Future research might also address issues which were limitations during this study. One limitation involved the difficulty of isolating written language instruction and restricting it to the experimental situation. For the purposes of this study, written language activities which occurred outside the intervention period were considered practice, not instruction. It is further assumed that the students involved in this study demonstrated impairments in written language to the degree that they would not participate in or benefit from outside writing activities. Since the planning device and self-monitoring procedure were specifically developed for this study, their use was restricted to the intervention session. There were no opportunities for outside practice using the specific treatments. However, students may have gained facility, if not skills, in written language through outside practice. Future efforts may include ways to control or account for writing activities throughout the school day.

Future research must consider the assessment of learning and determine practical ways to measure academic

gains. To do so, the relationship between cognitive activity and academic performance must be delineated and specified in measurable terms. Currently, the field of cognitive strategies research is evolving, and measurements are suggested in tentative and often difficult to substantiate terms. A melding of behavioral and cognitive perspectives is underway, as indicated by increasing focus on cognitive behavior modification and self-regulation techniques, two areas which blend disciplines. Future research efforts may benefit from a multidisciplinary approach to assessment.

The specific planning device employed in this study is an original contribution to the field of cognitive strategies research. Its effectiveness encourages the development of other cognitive strategies for further study. Cognitive strategies, such as the planning device and self-monitoring procedures, have not been previously applied to the conceptual aspects of written language instruction for learning disabled students. Future research might extend the application of cognitive strategies to written language through the development and use of new strategies and might also attempt to apply strategies to other academic areas as well.

### Summary

The effectiveness of specific intervention for learning disabled students must be supported by research to ensure quality and appropriateness in instructional planning. A program to teach written expression to learning disabled students may be developed by gleaning information from research in the areas of writing, learning disabilities, and cognitive strategies. The specific intervention described in this study is based on current findings which suggest how learning disabled students approach a learning task. The effectiveness of cognitive strategies training as one alternative to approach the task of the written expression is suggested by the results of this study.

Students who were trained in writing strategies performed better in general on the TOWL than students who were not trained in strategy use. Furthermore, students who learned to monitor their own strategy use showed greater gains than students whose strategy use was monitored by the teacher. The introduction of cognitive strategies which emphasize planning and self-monitoring behavior appears to be an effective intervention in teaching written expression to the learning disabled child and is a viable topic for further study.

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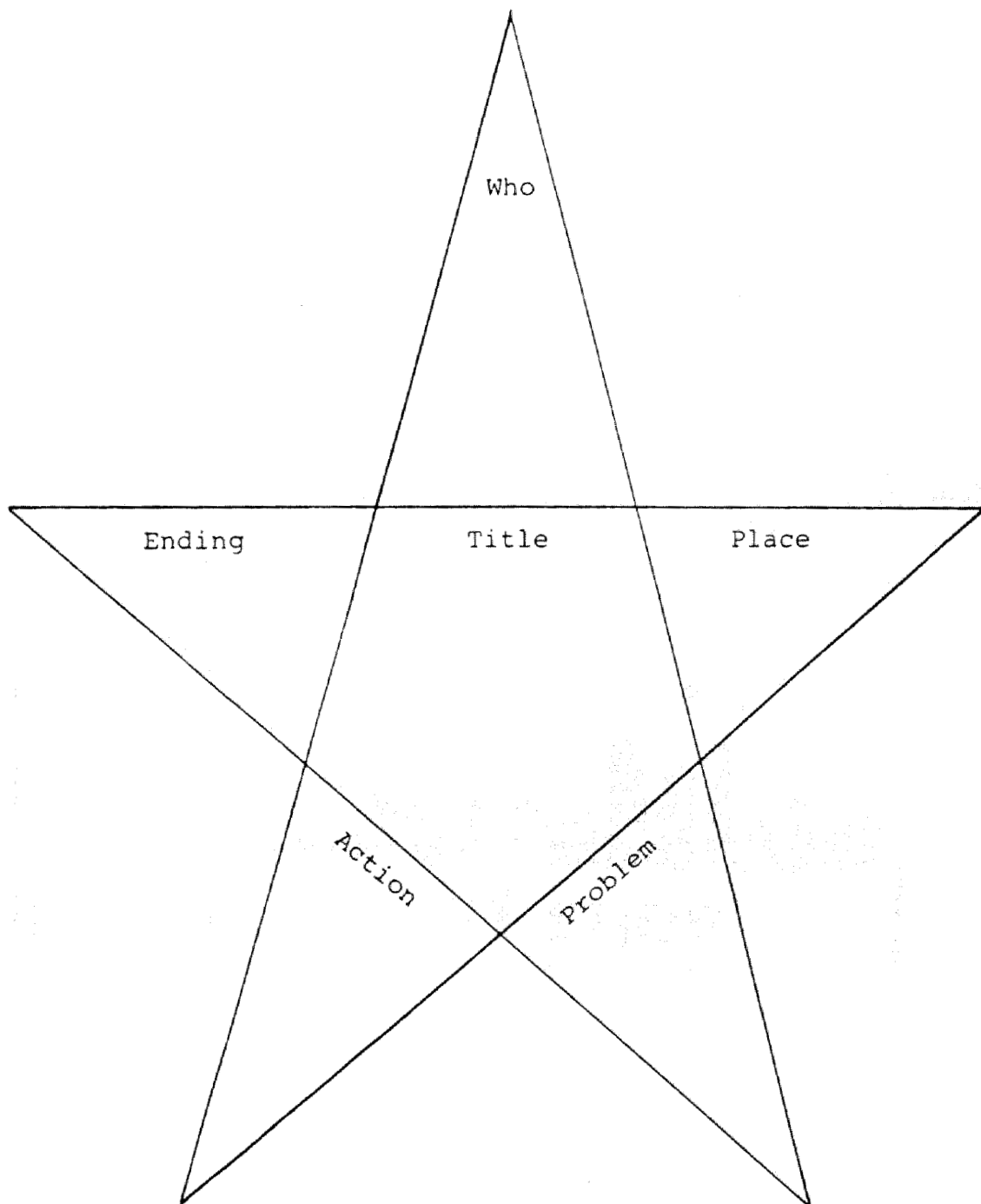
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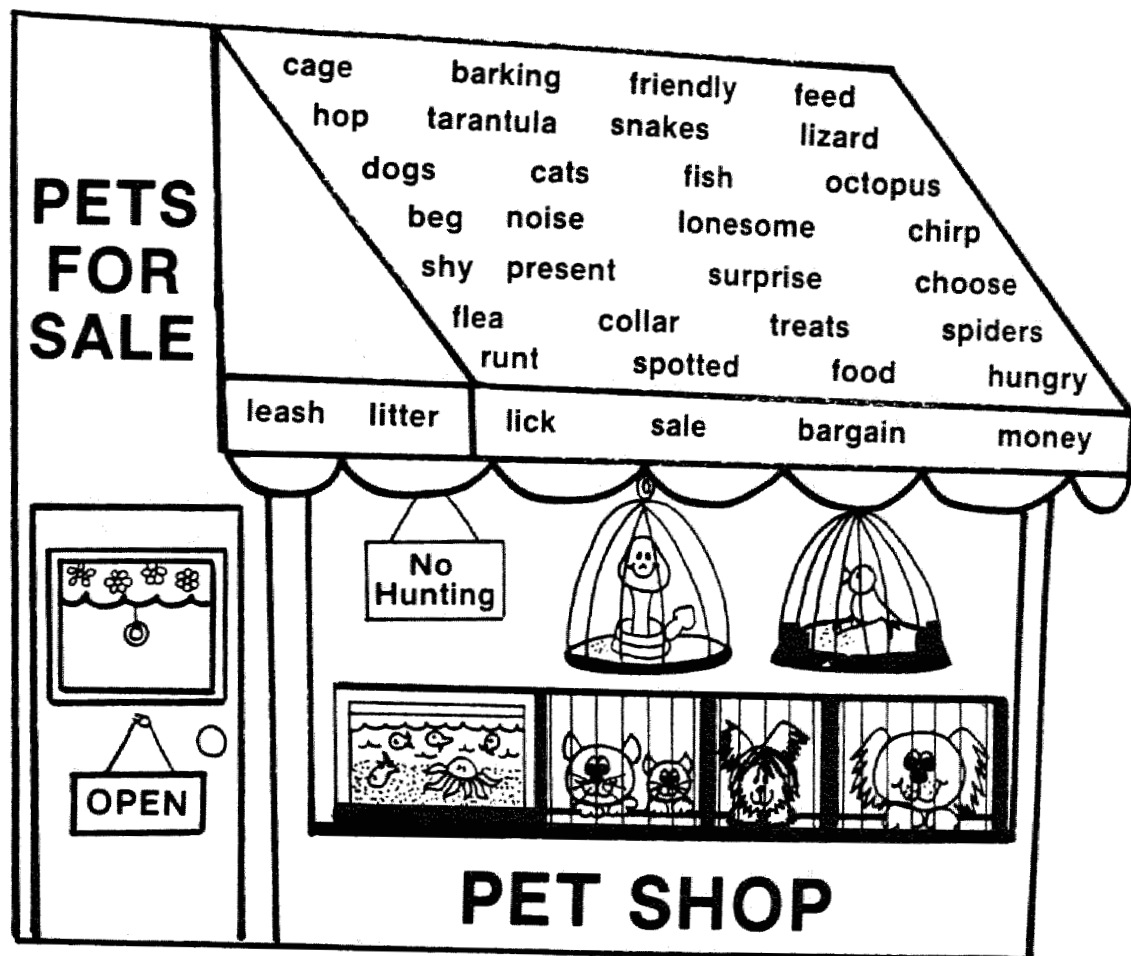
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## APPENDIX

### Story Star: A Planning Device Sample Story Starters

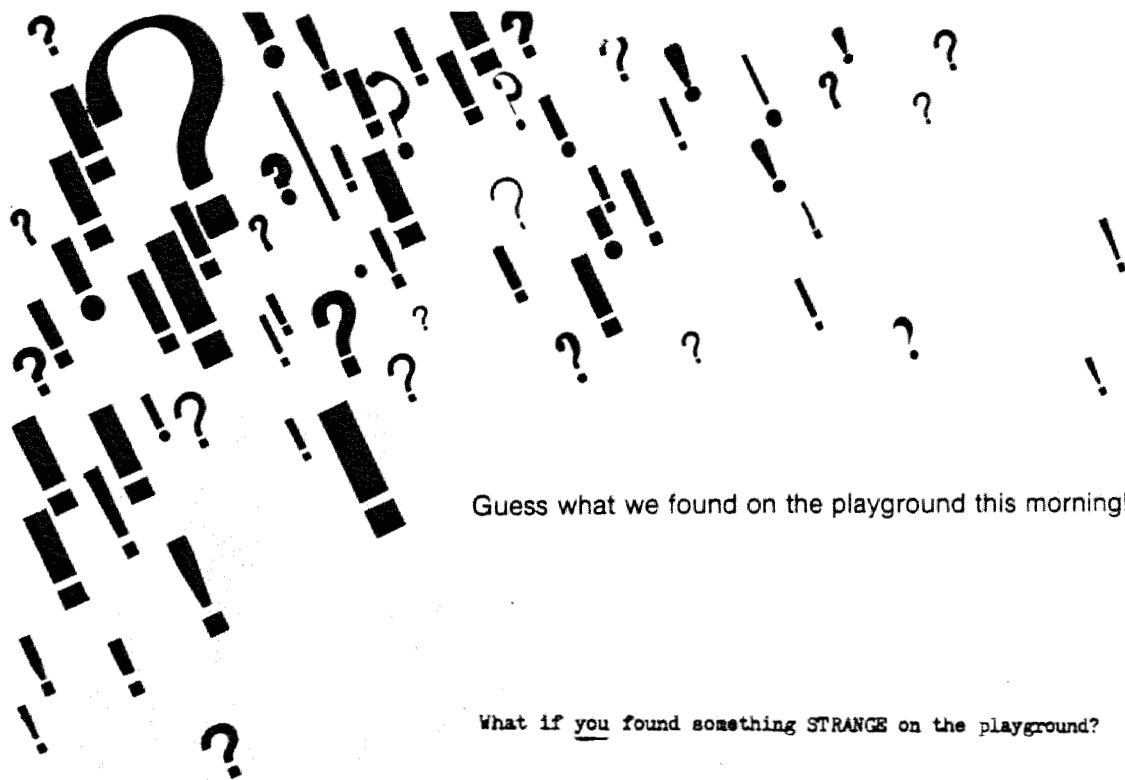


Story Star: A Planning Device



Sample Story Starter: Word Bank\*

\* from: Cartloads of Creative Story Starters



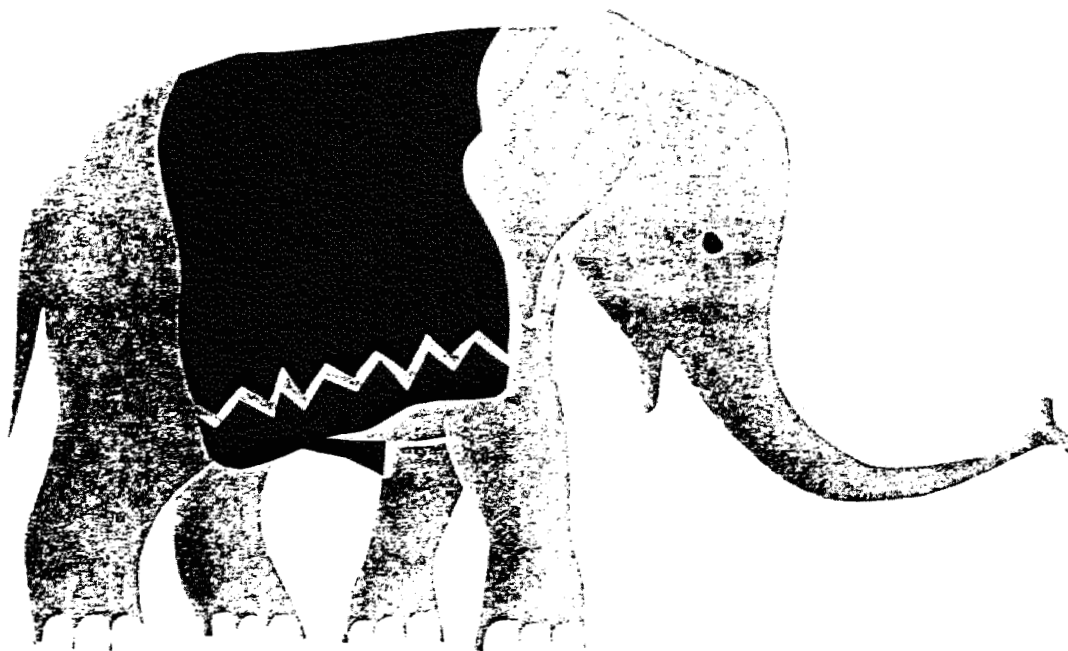
Guess what we found on the playground this morning!

What if you found something STRANGE on the playground?

Sample Story Starter: "What if . . .?" Statement\*

\* Adapted from: Story Starters, Primary

Just as we got into our seats, the circus began.



Sample Story Starter: Topic Sentence\*

\* Adapted from: Story Starters, Primary